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Future Offerings in Heavy Duty and Fixed Equipment[1]

S. BLICKMAN

President, S. Blickman, Inc., Weehawken, New Jersey

Are you expecting innovations of far-reaching effect?
Do you know what the new offerings are and when they will be available to you?
Are you familiar with the underlying principles which are fundamental in the selection of equipment for operating efficiency and economy in cost?

IT WILL take many years to fill the void created by the wearing out of old equipment and its necessary replacement, as well as the demand for much needed new equipment which could not be filled during the war emergency. In taking into account this vast equipment program required for new institutional replacement and construction it becomes possible to understand the present abnormal requirements for food service equipment.

Before going into detail on the subject matter of this paper, it is necessary to define the meaning of the terms used in the title, "Future Offerings in Heavy Duty and Fixed Equipment." *Heavy duty equipment* refers to products custom-built or manufactured in the fabricating plant of the food service equipment manufacturer, and involves the use of medium and heavy gauge sheet metal and light structural sections. A food service equipment manufacturer is essentially a producer of sheet metal products. The term, *fixed equipment*, refers to the mechanically or power driven units such as dishwashers, mixers, peelers, and burnishers, as well as ranges, bake ovens, and refrigerators. In other words, these items of food service equipment are produced by companies not generally engaged in the production of products commonly known as custom-built or manufactured kitchen equipment. Thus, there is a distinction between the terms, *heavy duty* and *fixed equipment*, as well as an interchangeability in these terms, with custom-built or manufactured equipment on the one hand, and standard or purchased equipment on the other.

The emergency period through which we have recently passed has resulted in engineering and scientific developments of far-reaching effect on the lives of people, as well as on the products which afford us comfort and convenience. It is of immediate interest to know what effect these will have upon the future offerings in heavy duty and fixed equipment and when some of these developments will become available to you in your daily work.

It is possible to state with reasonable assurance that, insofar as heavy duty equipment is concerned, one may expect but little change. It is true that great strides have been made in the development of new alloys, but there has been no real contribution made insofar as application to heavy duty equipment is concerned. It seems that there is no metal to replace stainless steel as the outstanding material used in the construction of heavy duty equipment. In this industry, the requirements of war for Army, Navy and Maritime use necessitated simple constructions, the elimination of scarce materials, especially stainless steel, the elimination of labor to the greatest possible extent, and the production of food service equipment of sturdy construction and yet of short life, not to exceed a reasonable expectation of the war's duration. There was no need to build equipment having a long life. If the expectancy of the war's duration was five years, there was no reason to build equipment having a life of 15 or 20 years.

A few typical examples of materials used in heavy duty equipment required for war use were the employment of vitreous enamel steel for coffee urns, galvanized iron for sub-structures and to a large extent for table tops. An extreme example was the substitution of wood for cafeteria counter framing and to a great extent for many kitchen equipment sub-structures. Nickel and chromium were needed for direct application to instruments of destruction.

The most important problem was to produce kitchen equipment quickly and in large quantity. Details of finish and construction were placed in the background. Skilled labor in sufficient quantity was not available and what skilled labor was available soon lost the ability for carrying out meticulous and careful construction detail.

[1]Presented at the New England Conference on Organization and Management, June 7, 1946.

The mass production of food preparation and service equipment was not entirely without an impact and influence on postwar production. The introduction of dies, tools, jigs, and fixtures has shown the way to the application of similar methods to those progressive manufacturers who had the foresight and initiative to utilize such labor saving devices. Unfortunately, however, on most items of heavy duty equipment, the application of such labor saving devices is limited.

In conclusion, it is reasonable to state that, as a result of the war, but little contribution was made insofar as the fabrication of heavy duty equipment is concerned, except with the fortunate situation that many manufacturers were left with a greatly increased plant capacity, with more modern equipment, and possibly a few manufacturing processes which should be of help when properly applied to the production of heavy duty equipment.

On the other hand, such items defined herein as *fixed equipment* definitely reflect the accelerated effect of engineering, research, and development. A unit of mechanical equipment in use aboard a ship, or at a remote point on a land installation far from a point of servicing, had to be built with a greater degree of ruggedness and mechanical simplicity than heretofore known. It can be stated with assurance based on experience, that mechanically operated food service equipment, under conditions of war use, did not and could not receive the same care and attention ordinarily expected under conditions of normal operation. Therefore, the manufacturer of such fixed equipment had to build into it the necessary stamina to withstand every possible kind of abuse. In short, such equipment did undergo a radical change in design to assure continuity of operation under abnormal conditions, and this has been reflected in the postwar product by the leading concerns building such equipment.

What are other considerations equally important influencing and affecting future offerings in food service equipment? The problems encountered in attempting to answer this question were numerous. The group of manufacturers dealing with fixed equipment such as manufacturers of dishwashers, peelers, mixers, burnishers, slicers, ranges, broilers, fryers, toasters, refrigerators, low temperature freezers, compressors, as well as the miscellaneous items identified with this industry, are scores in number. From 1939 to 1945, business was directed entirely to the war effort, and only since V-E Day has there been time to devote to the postwar problems. Then came V-J Day with its ramifications involved in contract terminations and reconversion. These problems were not enough, but to them was added the problem of labor, as well as the annoyances and delays occasioned by labor disturbances. Add to this the manufacturing problems occasioned by an inadequate flow of basic raw materials and parts to maintain a continuous production flow and it becomes possible to understand the difficulties encountered in keeping fully abreast of what was happening in the plants of scores of concerns from whom fixed equipment is purchased. In addition, consider the insurmountable conditions which these manufacturers had to overcome where electrical and mechanical parts constitute the major part of their manufacturing.

In an effort to gain some insight into what is new and what will be new in the field of fixed equipment, letters were written to scores of concerns in allied fields. The answers reflect the problems which are so seriously hampering the progress in this industry and the failure of some of these companies to proceed with their well-intended plans to give you their best in the way of fixed equipment. The letters which follow were typical of many received.

> Like everyone else, we have plans for new items, but reconversion difficulties and our tremendous backlog force us to go slow on our plans and we do not expect to have anything definite for some time to come.

> When V-J Day came along, I guess most manufacturers figured as we did: namely, that conditions would be improving as months went by and that by this time, new and improved items would be coming on the market. Unfortunately, we all missed our guess as conditions today are many times worse than they were at any time during the war. While we do have some new things we'll be offering, we will not be in a position to announce these until conditions improve and we can do a better job of keeping up with the unprecedented volume of orders. Right now with our deliveries ranging from eight to twelve months after receipt of orders, I am sure you can appreciate the fact that we can't very well afford to add to our manufacturing problems.

> We regret to advise you that we have nothing new to offer at the present time, or in the immediate future, on our line of garbage grinding equipment. Our present large machine remains the same as those with which you are familiar, and, as you know, we are currently engaged in the further development of our small unit to make it foolproof and suitable for civilian use. This development work has been slowed up to a very great extent by reason of our past labor difficulties and a continued manpower shortage, and we anticipate that it will be several months before we will have our work brought along to the point where we can make any public announcement.

> We are sorry we are not in a position to give you such detailed information as would make your paper of any value, due to the fact that the changes and improvements that we have in mind have not sufficiently progressed in our engineering departments to enable us to arrive at a final decision and adoption.

> As you are well aware, the war years slowed down development and design so measurably that to this time little in the way of major departure has appeared before kitchen operators. However, this company has been exceptionally active since V-J Day and we are working toward the end of soon making available to the public the first proof of our laboratory and engineering efforts. With this letter I am enclosing a brief sketch of our ideas

of the whole picture and an outline of some of the things we are doing and plan to do. It is my hope that in this sketch you will find some ideas and information which can be incorporated in your paper to be presented to the group of dietitians of which you speak.

These letters are typical of many and give some hope that research and development, while retarded, will soon have expression and fruition in the form of offerings of fixed equipment that are new and of great interest. One cannot predict any startling innovations. There will be definite improvements in operations, efficiency, and functioning, and, in some cases, improved mechanical design, greater ruggedness, appearance, streamlined construction, and sanitation. It is true that a small number of manufacturers have reached the stage where they are offering novel ideas that make for efficiency and effectiveness in this field.

The most important factor which is now retarding new development is the unprecedented demand for food service equipment beyond the wildest dreams and possible capacity of any manufacturer, even after making proper allowance for the so-called overexpansion capacity created by the war. The important problem now is to produce equipment and place it in the hands of the user. The employees formerly engaged in research and engineering development are now generally assigned to production problems involved in turning out items of equipment involving standard design. These men are at present generally engaged in the problems involving "plant set-up" and "tooling up" to increase production. This further explains why so little new equipment is being offered at this stage of our retarded and wobbly reconversion.

It has been my "lot" to be a director and chairman of a building committee of a mental hospital. I can truly say "lot." It is a job on which one cannot strike, sit down, or run away. The responsibility involves new construction, maintenance of buildings, grounds, and equipment; and, of necessity, the problem of dealing with hospital labor is paramount. The type of help, its effectiveness and efficiency, and wages one must pay this help to keep our hospitals going are familiar problems. It is obvious, then, how important it is to operate equipment that is effective and economical from the standpoint of operation and maintenance. It will be necessary to do your planning and layout more carefully and to determine how each piece of equipment will be designed to do a given job, and do it well. Furthermore, it will be necessary to think not only in terms of operating efficiency, but in terms of cost of equipment. For this purpose it is more important to have fundamental ideas on the equipment problem; *i.e.* it is more important to have general ideas than a few isolated details on construction or things that are novel. The basic cost of materials—steel, stainless steel, light structural sections—have increased but nominally during the past ten years. Stainless steel, for example, has increased approximately 11 per cent in cost. However, the cost of labor to produce heavy duty equipment has gone up 50 per cent. These changed ratios will have a direct effect on the price of kitchen equipment. Factory labor is now the dominant factor, not basic materials. What do the changed ratios imply? Briefly, it is desirable, from the standpoint of operating efficiency, maintenance cost, and initial cost, to use substantial and heavy gauges. One principle which bears repetition is that "stiffness and resistance against buckling and bending varies as the square of the thickness." Greater thickness of under-structures and tops involves less reinforcing and bracing, less reinforcing and bracing involve less factory labor, and less factory labor involves a more economical cost. The avoidance of complicated constructions and complicated detail will reduce the costliest factor on any equipment purchase.

For example, in any type of cabinet construction, it will be more economical to build the panels of heavier gauges which are self-supporting than to build such pieces of equipment with light panels over a supporting framing. Likewise, it is more economical to build the top of such a fixture of heavier gauge than of a lighter gauge. With a lighter gauge there would be attendant possibilities of buckling. As a result, it would become necessary to do an abnormal amount of bracing to remove such buckling or to remove sag from overloading. Therefore, a heavier top with a lesser amount of bracing would be preferable to a light top with an excessive amount of bracing. Likewise, trim on doors, corners, as well as horizontal trim should be reduced to an absolute minumum. Trim involves not only fastening by riveting, or bolting, or welding, it also involves cutting, fitting, and preparation for attachment. Avoidance of trim simplifies factory polishing and obviously eliminates maintenance in the kitchen and cafeteria. Under present conditions of operating a kitchen, one should stress simple constructions, heavier gauges, avoidance of bracing to the fullest extent possible and avoidance of trim. It is needless to mention that elimination of interior framing to the fullest extent possible simplifies the problem of keeping a fixture clean and sanitary at points difficult to reach. This does not mean that interior framing and trim should be entirely eliminated, there being certain types of units where these features are desirable and necessary.

Open under-structures of dish tables and work tables will involve tubular construction in place of angle iron construction. The tubular structure facilitates ready cleaning, saves labor, and it is sanitary to a high degree. In addition, there are advantages in light reaching the floor and the floor being visible at all times. Table top construction should be provided with spillage edges,

except on the working side. These spillage edges may be in the form of a slightly raised, rolled, or an inverted "V" nosing, with the vertical edges carried down and under to provide reinforcement.

Soiled and clean dish tables will have to be given extra care in design, with special emphasis on sanitation, spillage, and breakage. A poor layout imposes the penalty of repeated waste performance for the life of a given piece of equipment, and at no point in the kitchen is the problem of labor more difficult than in the dishwashing and scullery areas. There are no new constructions or panaceas to offer against what is already known. However, the use of heavy gauge material should be stressed for tops. Tubular under-structures should be noted. Legs should be kept to a minimum, and where dish tables adjoin walls, rear legs should be eliminated by the use of proper wall carriers or brackets.

Every kitchen is a factory for the economic storage, conservation, and preparation of food. In view of the great increase in the cost of kitchen help, it is most important that those responsible for the planning of a modern kitchen take every factor involving kitchen operation into account. It is not only difficult to get satisfactory kitchen help, but difficult to get any kind of help. For this reason, everything should be done not only in the planning, but in the design of each item of equipment to reduce help to a minimum.

HEAVY DUTY EQUIPMENT

It is possible to present a few of the innovations which are or will soon be available:

Garbage disposal units. The overboard disposal of garbage during the war left a telltale trail and enabled enemy submarines to track down and sink our vessels. In connection with the Navy program, nearly a thousand garbage disposal units were furnished which ground the material originating from the various preparation and food service departments to a pulp. The material was then flushed overboard in a state in which no trace would remain of the passage of the ship. Later on, these grinders were installed by the thousands and proved very satisfactory. While it is true that some garbage has a value, a great deal of the material is an annoying nuisance to handle, and garbage units installed at several convenient locations would save considerable money in operation. Among the garbage disposal units built during the war was one having a capacity of 300 lb. per hr. Larger grinders were likewise built, having a capacity of 2000 lb. per hr. It is desirable to install these grinders in buildings where piping is suitable, or to plan for same on new installations. These disposal units will be commercially obtainable soon.

Steam table heat control. Steam tables have generally been operated in a water bath heated by steam, gas, or electricity. Steam tables gave off clouds of vapor which, in many cases, caused annoying condensation. In addition, the temperature was undesirably uniform for all of the items of food stored in the insets and food pans. During the war, a unit was manufactured for use aboard ship in which the water pan and steam coil was eliminated. The unit operated on a fractional horsepower motor and was equipped with a thermostat. This permitted the maintenance of any desired temperature. The diffuser circulated the air underneath the vegetable insets and pans and, on its passage over the heating element was recirculated again and again. The disadvantage of this unit, however, was due to the fact that the temperature of the insets and pans was constant throughout the entire length of the steam table. It did not provide variation in temperature for different foods. Recently one company has developed a thermatic unit which gives variable heat control within the limits of each individual inset and pan. Additional methods of electric heat transfer and control have been developed whereby the steam table top is divided into sections or panels, each panel permitting of a variable heat control. The units are simple and efficient and have the advantage of very ready replacement. Many such units in steam table installation will be found in the future.

Coffee urn. An item of great interest is a permanent coffee filter which eliminates the use of urn bags and filter papers and, at the same time, assures the full strength of the coffee brew. This unit was in process of development during the war period, but little time could be given to its development. With the advent of V-J Day, the unit was developed and is now being offered as a commercial product. This unit was invented by a coffee blender who had had much experience in the blending of coffee. The coffee is filtered through a specially constructed bottom made of perforated superimposed stainless steel sheets. The holes of the upper plate are positioned above the solid areas of the lower plate, with the edges of the upper holes just touching the edges of the lower holes. The coffee liquid drains down from the coffee grounds above the filtering surface, passes through the openings of the upper plate and then proceeds edgewise by capillary attraction into the holes of the lower plate, finally passing into the coffee liner below. The filter effects three important savings:

(a) It eliminates filter paper and urn bags.
(b) It effects a greater percentage of flavoring in the coffee brew.
(c) It extracts the full strength of the coffee.

Heat control. There will be a greater use of controls on fixtures heated by gas, steam, and electric current. Less dependence will be placed upon

manual control. In addition to the savings resulting from controlled heat consumption, there will be less heat diffusion in the operating areas with a resultant convenience to the operator and improvement in ventilating and air conditioning operation. Thermostats have been developed to a point where they are definite and positive in their operation and require but little maintenance.

Insulation. Insulation and sound deadening will find greater application. Many new forms of self-supporting light weight insulation have been developed during the war period and these will find ready application on heavy duty equipment of the future. Insulating materials have been developed having one third the weight, volume for volume, of the old types of rock wool or compressed cork insulation. The new insulating materials lend themselves more readily to application for doors, warming cabinets, and steam table enclosures. New materials have been developed for the under side of work tops to deaden the sound. These materials lend themselves to application to a thickness of $\frac{3}{8}$ in. The materials have good qualities of adhesion, sound deadening, and permit of ready cleaning and washing while they remain plastic. The application of proper bumpers on doors and the adjustors of table legs will find greater application in the elimination of unnecessary clatter about the kitchen and cafeteria.

Ventilation equipment. While ventilation and air conditioning generally form an industry beyond the scope of the manufacturer of heavy duty equipment, hoods over ranges, broilers, and such other equipment as requires hoods have generally remained within the scope of our industry. There will be greater application of metal gauze grease filters in such hoods. Placing these filters on an angle at the back of the hood from end to end forms a space resembling a ventilation header. The filters are placed to permit of ready removal for washing. With these filters, all exhaust is screened and a consequent fire hazard is averted. The greater application of these gauze filters resulted from their use aboard ship during the war period.

Cabinet hardware. Requirements for ship application necessitated the design of an entirely new line of cabinet hardware. Due to space limitations, equipment had to be condensed as much as possible and hardware particularly had to be built flush. This resulted in the design of stamped hardware involving handles, latches, closing devices, and locks. The difficulty in obtaining bronze castings heretofore in use for this type of hardware necessitated the design of stamped stainless steel hardware. These handles, latches, and locks will find ready application in heavy duty equipment of the future.

Steam injector. For application aboard ship, a new type of steam injector was developed, superior to and less noisy in its operation than the old type which was used where it was necessary to heat a substantial amount of water quickly, particularly on very large sinks. The new injector permits of ready application to the sink unit and will be in greater use on future equipment.

Display fixtures. Display fixtures which previously have involved front and rear square tubular posts, cross connected, and framed to hold glass shelves, will find ready replacement in a single row of rigid vertical cantilever posts on which are mounted brackets which carry the framing into which the glass is inserted. On many installations, the framing to support the glass will be entirely eliminated, and the glass will be made of sufficient thickness to be self-supporting and with all edges rounded to prevent chipping.

Dish dispenser. This unit has found ready acceptance. A large number of them were installed in all classes of ships by the Navy and Maritime Commission. There are two types of dish dispensers—one, consisting of a calibrated spring within a circular vertical housing which dispenses flat shapes, such as plates and saucers; and the other type, which operates a movable platform to take 20 by 20 in. baskets which delivers cups, and glasses. After each basket is emptied, it is removed, and another full basket comes up out of the well. Dish dispensers are mentioned in this connection, as this unit, in general, has to be actually built into and form part of a unit of heavy duty equipment.

Prewasher. Another item which will have greater application is the prewasher. Since this piece of equipment is generally built into a soiled dish table, it is treated under the heading of heavy duty equipment. By means of this unit, the operator passes the dishes through a heavy stream of water which loosens stubborn food particles and flushes away grease. Tableware which might otherwise be lost through hand scraping is trapped in the built-in salvage basin. The garbage is flushed into an enclosed mesh basket through which a continuous stream of water pours carrying away all the liquid. The remaining solid material, washed clean and free from odor, is readily removed for disposal after each mealtime operation.

FIXED EQUIPMENT

A few of the new developments on fixed equipment, covering only such items as have actually reached the consumer, will be enumerated.

Steam jacketed kettle. The new steam jacketed kettle is a major improvement over the old type of steam jacketed kettle. This unit meets the full requirements of the United States Public Health Service. The kettle is sanitary in every respect and represents a major step in the direction of efficient steam kettle operation, maintenance, and effectiveness.

Heavy duty ranges. Many developments and improvements have already found their way into heavy duty ranges, among them the following:

(a) Automatic oven lighters with safety shut-off will be available. This device shuts off the gas immediately if the flame on either main burner or pilot light goes out. When the pilot is lighted, the operation becomes automatic.

(b) There will be a greater use of porcelain lined insulated combustion chambers.

(c) One of the leading manufacturers of ranges is working toward making available to the public the first proof of its laboratory and engineering efforts. This manufacturer will shortly be producing as a commercial product an all-bright exterior and interior range. This means a new item of bright metal throughout, produced at a reasonable cost to be effected by modern mass production methods. The range will be completely built inside and outside of stainless steel, even to the extent of reinforcements and fittings being made of corrosion resistant metals. The bright metal exterior is of exceptional importance—ease of cleaning and a spotless modern appearance will be the result. This progressive manufacturer is in line with the trend on heavy duty custom-built equipment in the application of stainless steel wherever possible, in order to eliminate costly operation and maintenance costs.

(d) Results of experiments on the first electronic range by engineers of one company in cooperation with their research and engineering laboratories and the industrial heating and electronics division were announced on March 10, 1946. Briefly, it may be stated that the results of the experiments did not give any promise that in the near future this form of cooking will be in common use. As a matter of fact, the first effort to cook raw meats by the high frequency method resulted in complete failure. The meats were cooked, if judged by the standards of food chemistry, but judging by any ordinary American taste standard, the food was not palatable. It is definite, however, that induction heating will soon be used in the kitchen—if not immediately for the cooking of foods, for other important applications, one of which may be the defrosting of frozen precooked foods and quick-frozen foods.

A greater use of the rotary tray ovens, instead of the normal arrangement of small ovens will be seen. They are made in lengths from 5 to 15 ft. with trays ranging from 4 to 12 ft. long. Among the advantages are automatic timing and heat control. These units have been accepted by the Navy and have proved satisfactory in use and will find future wider acceptance in large institutions.

Newer dishwashers. The following may be considered among the outstanding features:

(a) All manufacturers, because of the remoteness of servicing dishwashers for war application, built greater ruggedness and endurance into their equipment and this will be definitely reflected in the postwar models.

(b) A cooperative effort is being made by manufacturers of dishwashers to study the problem of dishwashing particularly from the standpoint of sanitation. This involves the study not only of ease in maintaining the dishwasher itself in a sanitary and clean condition, but also maintaining the dishes and utensils as free as possible from bacteriological contamination. This work will greatly influence not only the design but the operation of the dishwashing unit of the future. The dishwasher must be readily accessible for cleaning and must be provided with ample facilities for washing and rinsing. This involves a study of detergents and the most effective use and methods of heating to maintain a proper and uniform action on the removal of soil from dish surfaces. Where a continuous hot water supply at a minimum temperature of 170°F. is not available, a "booster" will become an absolute necessity to insure that the rinse water will be at a requisite temperature.

(c) There will be a definite trend toward streamlining the dishwashing unit with a special effort toward ease of cleaning.

(d) A most interesting development is the use of a hydraulic drive to take the place of the old chain belt carrier drive previously used in the automatic rack type machines. In one new model, the drive is positive and pushes the racks out of the machine from the feed end to the dish table. Speed control is provided.

(e) In line with the question of efficiency and sanitation in dishwashing has been the problem of prewashing, precleaning, and presoaking of food utensils. The prewasher has been discussed above. Commercial mechanically operated units to handle the prewashing and presoaking of utensils may be expected. A sculling machine is already available. This unit is placed in line prior to the wash tank. The unit permits the removal of the greater volume of food soil before the utensils enter the dishwashing and sanitizing unit. By removing the heavy volume of food soil, the detergent is conserved to perform its work of removing "hard-to-wash" soil from the utensils. Heavy garbage is caught in the large perforated basket which is easily removable. The overflow of rinse water from the dishwashing machine is utilized to purge the sculling machine.

(f) It is reasonable to expect that in the future the dishwashing machine will have rounded corners in all areas where soil may accumulate just as rounded corner construction has found common acceptance throughout production of heavy duty kitchen sinks.

(g) It should be stated, in connection with things new and novel, that the dishwasher industry is literally swamped under an avalanche of business and while all companies have made definite improvements in their models, all have not completed the research and engineering work which will result in future offerings of dishwashing equipment of benefit and advantage to the consumer.

Steam vegetable cookers. One manufacturer reports substantial developments in heavy duty steam cookers in both design and materials. Although stainless steel steamers were not uncommon in the years immediately preceding World War II, their use was the exception rather than the rule. Since V-E Day, however, civilian demands have been made fully apparent and the preference for stainless steel construction has far outweighed the demand for the inexpensive equipment widely used before the war. Design has also progressed and units are now provided with more substantial streamlined base structures available with enclosures if desired. New and durable finishes have also been developed. The various mechanical components used for the control of steam through the equipment and the evacuation of air and condensate have all been improved through lessons and experiences provided by wartime service; thus the steamer of today embodies all of the new ideas brought forth during the past five years.

Mixers, peelers, vegetable cutters, and slicers. No announcements of an outstanding nature have yet been made regarding novel features of design and operation on mixers, peelers, vegetable cutters, and slicers except that these units have been greatly improved over prewar models for the reason that these units were used at remote points far from servicing facilities. Drives have been improved and in many cases roller bearings placed where they were not used heretofore, thus lending greater operating efficiency. Many of the units have been streamlined, with new finishes giving greater resistance to corrosion and wear.

Water ribbon ice unit. Another item of value, particularly to installations where food storage and display requirements are large, is the water ribbon unit. The item was in use before the war and will find greater acceptance in the near future. It has been improved and will find application on large installations as a substitute for ice cubes and crushed ice. The general principle of water ribbons is that they overlap each other like shingles, cut off infiltration of warm air, and thus prevent useless melting. In display counters and ice trays, it is claimed that this shingled effect saves well over 10 per cent of the total ice used.

Silver washer and dryer. An item which has been greatly improved since V-J Day is the silver washer and dryer. Many details of construction have been improved to render this a more efficient and effective operating unit. It is receiving wider acceptance by restaurant chain organizations, as well as institutions. Briefly, the unit is operated as follows: The soiled silverware is dropped into a special basket as it comes from the dining room. This basket is then passed through the dishwashing machine or immersed in hot water in a sink to remove excess food. The silverware is then poured directly into the silver washer and dryer, in which it is washed in a detergent solution removing all grease. While in the machine, it is rinsed in hot water under high pressure, and then dried with electrically heated air. When the machine stops automatically, the silverware is spotlessly clean, sterilized, all food stains removed, and ready to be returned to the dining room.

Electric meat, fish, and bone cutter. The band saw has been streamlined and additional safeguards added which make for improved and faster operation. It is interesting to note the great number of concerns now manufacturing this general type of band saw. There will be many models from which to choose.

Refrigeration. The introduction of frozen precooked food may have an important bearing not only on storage requirements, but may definitely affect the entire kitchen planning. Frozen precooked foods are now being used to a large extent by one of the large airways, and were used to a large extent by the Navy on its night flying operations. Considerable interest is being shown in the field of frozen precooked food and its introduction into institutional feeding should be reckoned with, not only in the kitchen planning, but in the diet kitchen as well. The introduction of frozen precooked foods will affect storage type refrigeration, in which case temperatures and controls will be radically affected. The issuance of finished food from the main refrigerators may mean the transference of food directly to ward serving kitchens, entirely by-passing the main kitchen. The type and capacity of the dry stores section of the main store room would also change radically. The further acceptance and use of increased quantities of quick-frozen foods requires flexibility in the low temperature sections and in compressor capacity. This flexibility is lacking at present in built in storage refrigerators. To meet this situation, a number of the leading manufacturers of refrigerators have already developed types of storage refrigerators affording this flexibility.

One company will shortly be cataloging a line of freezers which will be built in four widths, 6, 8, 10, and 12 ft. The sections will be built so that the freezer can be any desired length. After installation, all that the institution has to do, if an increase in length is desired, is to add inside wall, top, and floor sections. However, if the size is

increased materially, additional compressor and coil capacity will have to be provided. This type of refrigerator can be built as a separate unit or it can be built in conjunction with a normal temperature box. Thus, if an institution needed a three-compartment refrigerator, i.e. one for vegetables, size about 8 by 8 ft.; one for meats, size 8 by 10 ft.; then it should have a freezer adjoining it, size 8 by 6 ft. The total overall length of this refrigerator would be approximately 24 to 25 by 8 ft. wide. It would be a three-compartment refrigerator, of which one compartment would operate at zero which would have to function from a separate compressor, while the other two compartments would operate at a temperature of 36 to 37°F. from another compressor. This flexibility has heretofore not been obtainable. This is now procurable through the use of standard sections. If it should be desired to increase the length of any section, all that would be necessary would be to add section units as required.

Further recognition of the need for flexibility in refrigerators is expressed by another manufacturer. This line of refrigerators is so designed that they can be increased in length and width to meet expanded requirements; it also affords means of meeting the possibility of combining a large capacity storage refrigerator into one assembly with a "reach-in" section, as well as a deep freeze section. In addition, it also affords flexibility with changing requirements.

As the frozen precooked food industry becomes more definitely established with the addition of requirements for quick-frozen foods, the entire trend in refrigeration may change. Thus, a main storage refrigerator may consist of an enclosed insulated room with lockers on each side. These lockers would give access to tightly partitioned off areas from any one of which a person may withdraw packaged food. The work aisle or walking space within the refrigerator would not need to be refrigerated at all.

Evaporator plate. In this connection it is well to mention that there will be an increased use of the many types of evaporator plates for salad and display refrigerators on counters. These will replace the old type of salad section heretofore used, to which continuous coils of pipe are fastened to the sides and interior. The evaporator plate is more efficient and permits of more ready maintenance than does the old type of salad section refrigeration.

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U. S. Public Health Service Examinations

A competitive examination for appointment of dietitians in the Regular Corps of the U. S. Public Health Service in grades corresponding to Second Lieutenant, First Lieutenant, and Captain will be held during the week starting October 7 in the following cities: Chicago; New York City; Boston; San Francisco; and Washington, D. C.

Examinations will be oral and written. Approximately one week is required for the complete examination. The physical examination and the oral interview will start at 9 a.m., October 7. Applicants who pass these examinations are eligible to take the written portion of the examination which will be given October 8–10.

An applicant for the Junior Assistant grade (corresponding to Second Lieutenant) must be: a citizen of the U. S.; at least 18 years of age; a graduate, with a bachelor's degree from an approved college or university with a major in dietetics and with credits in food preparation, nutrition, and institutional management. Applicants shall present evidence of general suitability, including professional and personal fitness. Candidates in this grade do not take a written examination.

An applicant for the Assistant grade (First Lieutenant) must meet the requirements stated above and must have had an additional three years of post-graduate training or experience. The written examination for the Assistant grade will be in: chemistry; bacteriology; nutrition; physiology; foods; and institutional management.

The written examination for the Senior Assistant grade (Captain) will be in all of the above subjects with the exception of chemistry.

Application forms may be obtained by writing to Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, Washington 25, D. C. (Attention: Office of Dietetics). These forms will be held by the candidate until requested to present them to the examining board.

Expenses incident to this examination are not defrayed by the government. If the applicant is now employed by the U. S. Public Health Service, time involved will not be charged against annual leave.

The Dietitian's Program for Food Service Modernization

MARGARET GILLAM

Dietary Consultant, American Hospital Association

Have you a plan of procedure?
Do you have the facts?
What are the future trends?
At the conference table will you be open-minded?
What new developments will you suggest?

IN ENTERING a new era which is moving rapidly to the modern we must prepare ourselves to accept new ideas and concepts. Science is reshaping much of our thinking relative to food handling, production, and service. New materials, new techniques, and new methods are available. The recent statement, "Define the function and find the form," provides an excellent guide for a food service modernization program.

In nearly every hospital, modernization of the food service units, planning new facilities or some expansion of the existing operation is taking place. The attention of the hospital administrator is being directed toward the importance of planning a food service that is highly regarded both within the hospital and in the community. The forward looking administrator welcomes this opportunity to modernize not only because of greater efficiency in operating and improved service to patients but for the effect on the workers of attractive, sanitary surroundings, and efficient work organization.

In no functional unit of the hospital is there less concrete information on planning available than in the dietary department. Practical basic standards are not available and the type of food service which will best serve the patients in specific institutions causes considerable concern. The inefficiency in kitchens now in use and in many being planned today reflect the lack of basic information and the pressure upon the administrator from all departments for space. Often, space for the dietary department is allocated with no preliminary study of the needs or functions to be performed. The dietitian is consulted too late.

No unit in the hospital, unless it is the laundry, depends so much on the correct placement of equipment for economical production. In food preparation, time in relation to service is an additional consideration. In the past, the average restaurant cook and many hospital dietitians produced food in quantity in advance of the meal according to the number of guests expected. Today, however, in the most successful restaurants food is cooked in small quantities according to guest arrival. This is equally true in the hospital. Furthermore, the correct placement of equipment of the proper size must be considered in the planning not only for the conservation of food nutrients and quality preparation but to avoid waste from surplus production. If previous errors are to be corrected, the dietitian must project herself early in the building program in order that location, shape, size, correlation of the food services, and the work organization may be considered at the time the architect is studying the needs of the hospital.

Now is the time for dietitians, through original thinking and by collective knowledge, to make a contribution by arriving at some basic standards for construction. Basic planning principles are needed which incorporate modern trends in production and service. It is almost impossible to find information describing a practical approach to the problem of kitchen and food service designing. No existing installation can be duplicated and satisfactorily installed. What is in use today may be outmoded in a new installation. No two areas set aside for kitchen layouts are identical and individual problems develop in every hospital plan.

The first step in the planning procedure is to apply a systematic approach by expressing in writing the interpretation of the objective of the service. Writing clarifies the facts surrounding the problem, and suggests in sequence the methods of solution.

Next, there is the collection and tabulation of information from articles that bear on the problem, pertinent information acquired when talking with equipment engineers and manufacturing representatives, and ideas of your own that come to mind when reading or thinking constructively about the prob-

lem, as well as opinions expressed during conferences that require further investigation. Reprints of research on new developments, catalogues from food service equipment companies, collected layouts, and illustrations provide helpful and current information. Instruction pamphlets on the operation of equipment, which are now available from many manufacturers, envision the job method and provide well worked out production procedures.

A careful study is suggested of all the facts surrounding the existing operation of the kitchen and service units at the operating level. A further detailed check on the work organization and flow of work for the "one best way" will determine the correct placement of equipment in the new installation. An evaluation should be made of the economy in time and money and improved production and service to be realized by the installation of labor saving equipment as well as the undesirable points or nonflexibility in the use of mechanized devices. Employee participation may produce many helpful ideas and in addition it promotes the cooperation necessary for the best working relationships. Inspiration is derived from visiting outstanding installations and reviewing these critically, keeping in mind the specific application to one's own problem.

Hospital planning today should be preceded by a careful study of current trends that may affect the future operation of the institution. Preventive medicine stresses mental as well as physical care and more complete hospital service to all is indicated. Public health services if included in the hospital center may require expansion of the food service to care for increased personnel and out-patients attracted to these centers. For economy, administrators are considering the centralization of many functional services such as centralization of delivery services to patient units and sterilization procedures.

A series of preliminary conferences with the planning group will provide the dietitian with data concerning these current trends and at these meetings the dietitian may present information about the newer trends in food service. Opinions from all interested department heads should be obtained as a mechanical change in food service usually results in some changes in the responsibilities of workers in other departments. The mechanized central food service particularly requires complete cooperation from several departments for its success.

This then is formulating a plan of procedure, getting the facts, studying the trends, interpreting these as they may be applied to future planning, obtaining opinions and placing opinions in the proper perspective.

The dietitian will be interested in considering the relationships between the architect, consultants, and owners. As stated in the *American Hospital Association Review* for 1945 (1), "The consultant determines what needs to be done to enable the hospital fully to serve its function. The consulting architect determines the best means of incorporating the desired facilities into a well integrated plant. The local architect incorporates the designs of the consulting architect into working plans and supervises the builders in translating these plans into a physical structure." A further statement is made that the contractor is arranged for by the owner or architect and usually works under the supervision of a local architect. An equipment engineer who is a specialist in planning and equipping food service units may be employed to work with the consulting architect and owners. He may be a consultant in the field or employed by a food service equipment manufacturer. In a recent study (2) it was reported that 39 architects had stated that providing for the dietary department was a source of difficulty. Furthermore, 25 did not feel that additional data would help solve the problem.

The owner representative or hospital administrator, architect, food service equipment engineer, hospital engineer, and dietitian in consultation provide the most satisfactory plans for the dietary department. I urge every dietitian to approach all meetings unbiased in opinion. Keep *an open mind* and distrust your own thinking unless you keep abreast of the times. Understanding the points of view of all members of the group is important for complete cooperation. The dietitian, who will have the responsibility for operating the food service, should gain the complete confidence of the group and her judgment should influence the final decisions.

Information should be prepared in advance, of the number to be served, future possible expansion, the approximate space required, and the general arrangement of the food units for the most efficient operation. Consideration is given to well considered opinions and decisions regarding the desired type of food service for patients and personnel.

Let us consider next some of the important factors that enter into the planning decisions. The trend as far as possible is to build from the inside out and this may be the ideal approach even in remodeling. In a report (3) of three well planned hospitals of recent construction, it was stated that the space allocated to the dietary department was 53 sq. ft. or 11.2 per cent of the total area in a 25-bed hospital; 24 sq. ft. or 5.7 per cent in a 100-bed hospital; and 33 sq. ft. or 6.5 per cent in a 250-bed hospital. This indicates that space for the dietary department cannot be arbitrarily assigned.

The space allocated to the kitchen will depend upon the type of food service and the centralization of services in this area. A recent formula worked out for a service type of restaurant with a capacity of 320 seats may be a helpful guide. Sam V. Wells,

food service equipment engineer, suggests 40 per cent allocation of space for the kitchen area and 60 per cent for the dining room. Take the dining room area and divide it by eleven, the approximate number of square feet required per person for comfortable seating. The answer will give the approximate seating capacity. Multiplying the seating capacity by seven gives the approximate number of square feet required for the kitchen. The kitchen area is then divided on a percentage basis as follows: dishwashing, 10 per cent; service and pickup, 20 per cent; cooking area, 18 per cent; pantry or salad and cold service, 10 per cent; preparation department, 18 per cent; pastry shop, 10 per cent; and miscellaneous for halls and passageways, 14 per cent.

In cafeteria service the serving unit will require about 15 per cent of the dining room area. It is generally understood for the most satisfactory service that one cafeteria counter is planned for each 250 seats.

Refrigeration space of 1 cu. ft. per person served which was formerly suggested has now been increased by 50 per cent to provide sufficient refrigeration and zero storage facilities for frozen foods. One company suggests 30 cu. ft. of refrigeration for 1000 meals per week.

The layout of the kitchen is viewed in terms of the over-all operation. The food production is visualized in proper sequence and the work areas segregated. The correct arrangement of equipment and placement of tools in these areas is worked out according to the job method previously studied for economy in motions. Into this arrangement, refrigerators should be placed where needed and the design of refrigerator shelving standardized throughout the food service facilities for the convenient transfer of salads and desserts on trays to service refrigerators or to food trucks for patient service. Separate mechanical units in refrigerators are now recommended for each fixture because of added flexibility in placement and better temperature control. The reach-in type of refrigerator is preferred for frozen food storage and these low temperature units for economy are being placed at the back of storage refrigerators.

Distances between working areas is kept at a minimum and the equipment in these units must be conveniently placed for the employees to work together easily. The kitchen as a whole should present a spacious and coordinated appearance with a minimum of movement of employees outside of their individual work areas.

There are two very satisfactory types of food service to choose from for patient service. The decentralized type of service is a decided choice in larger institutions where the horizontal transportation covers a long distance. This service provides greater flexibility; and it is less dependent upon trained workers and mechanical devices. Central tray service is satisfactory for hospitals of 100 to to 250 beds. Beyond this number duplicate central service units must be installed. In the newer installations the conveyor belt moves through the center of the service unit horizontally to a vertical transportation belt, at which point the tray is picked up automatically and transported to the proper floor. The movable belt assembly line keeps the service moving rapidly and almost rhythmically. The special diet trays are also included in this belt line service. Trays are served at the rate of two to five per minute. Important new features built into the service counter are automatic tray, glass and china dispensers, roll warmers and electrically heated hot food units with individually controlled temperature for each type of food. These electric units are replacing the steam table because of better temperature control, ease of operation, and safety features. On the nursing floors, tray carriers with shelves for four to six trays, reduce labor in delivering trays to patients and in collecting and returning trays to the conveyor. Conversely the conveyor system returns trays from the floors directly into the dishwashing room.

In the hospital of 100 beds or less the high speed dumb waiter takes the place of the mechanized conveyor system. An efficient arrangement is to provide in the kitchen, openings on two sides of the dumb waiter, one for loading the trays from the service unit and the other, opening into the dishwashing unit, for the return of trays directly to the soiled dish tables.

More attention is being given to the planning of the general diet or menu by adding supplementary foods to meet all special diet requirements. With this trend, it is possible to eliminate much of the food preparation in the special diet kitchen. In some recently constructed small hospitals special diet kitchen space is being converted to other use.

The tray truck with a cold and hot compartment is a type of service sometimes used, but it is cumbersome to handle and the service is subject to error in the final assembling of the tray. If, however, a lighter weight truck and a refrigerated unit is provided, in addition to the heated section, it may receive some future consideration. The open tray truck used for delivery of the complete tray should not be considered, as the time element is too long between the service of the food on the first tray and the delivery of the last tray from the tray truck to the patient. One approach which has been suggested as a possible means of arriving at a decision of the most suitable food service to patients, is to study the type of food items served on the tray each meal. There are usually about an equal number of hot foods and cold foods. If the trays are to reach the patient with the hot foods "hot"

and certain cold foods at a desirable low temperature, added emphasis may be given to controlling these temperatures by the use of vacuum type containers for beverages and by properly icing appetizers, relishes, cold beverages, and ice cream.

Tray service and particularly central tray service is more satisfactory when the dietitian has complete control of the operation to the patient's bed. Emergencies occur on the nursing floors which interfere sufficiently over a period of time to cause a breakdown in the service.

Changes in employee policies and the advisability of offering wages comparable to industry has resulted in the recommendation that employees in the hospital receive full cash wages and buy back as little or as much food as desired. In order to provide all possible economies, a centralization of food service to all personnel is being provided in some hospitals with one cafeteria line and one or two dining rooms. A concentration of service makes it possible to install a service counter with the latest automatic dispensing devices for saving labor. The new streamlined glass enclosures over food displays add a desirable sanitary feature.

Dishwashing units are one of the greatest labor shortage areas. Sanitation of dishes is receiving scientific study. These two factors point to the need of properly designed layouts and equipment. Repeated counsel by architects, equipment and sanitary engineers, and dietitians is needed. Conveyor belts for the transfer of dishes into the dishwashing room, properly arranged space for sorting, installation of equipment with prerinse features to take the place of scraping the dishes, two compartment machines with a separate wash unit from the rinse and sterilizing tank, and a belt to convey dishes from the dishwashing machine are desirable considerations. The development of a system of conveying dishes through a hot air dryer is still experimental but if perfected, it is a desirable new feature. Glasses and cups conveyed through the system in wire racks for storage eliminates handling and breakage.

What are some of the present standards and trends in construction? The most desirable floor for the kitchen is red quarry tile. In this case, cabinets, ranges, and bake ovens should be mounted on quarry tile bases. Asphalt or mastic tile and straight-line inlaid linoleum in decorative colors, are being used for floor coverings in dining rooms. Waterproof wall papers made by using plastic in the manufacturing process will make new wall decorations practical for institutional use. Kitchen walls 6 to 8 ft. high or to the ceiling are usually constructed of salt glazed tile or ceramic tile. Color is now considered to be of scientific value. Certain colors have been found to be contributory to eye strain, fatigue, and even mental dullness. Color should perform a function and "eye rest" surfaces should be in colors complementary or related to the shades the worker sees in his work. Cream color or certain shades of gray or green tile with ice green walls give the atmostphere of coolness and complement or blend with the natural colors in food.

Natural lighting is obtained by the installation of walls of glass block. Fluorescent lighting has replaced the filament bulbs in the kitchen. However, incandescent lighting is recommended for use over cafeteria display counters. The blues and greens in fluorescent lighting are not complimentary to food. One electric company is experimenting to obtain a yellow glow and expects to have fluorescent lighting "warmed up" by bringing up the red end of the spectrum. The extra maintenance expense of fluorescent lighting is offset as the current consumption per candle power is reduced by more than one half.

Air conditioning is expensive but desirable. Kitchens are now being constructed with ventilating systems providing modified air. Because of the possible future use of air conditioning, heat radiation from equipment should be reduced by the proper insulation of all heated units and rooms should be constructed to provide for future air conditioning.

Metals and hard material surfaces of glazed tiles and quarry tile reflect rather than absorb sound. Acoustical treatment of ceilings with sound absorption material which withstands steam and can be washed and painted is a routine specification in present building construction. Some companies are suggesting in certain areas, such as dishwashing rooms, sound deadening of fabricated equipment.

The noncorrosive metals because of long lasting qualities and ease of cleaning are specified for fabricated kitchen equipment. The new "35" monel metal is harder and stiffer than regular monel. The chrome nickel iron alloy known as "18/8" stainless steel is usually specified with a No. 4 mill finish. It is important that the correct gauge of metal be specified and one company suggests the following: No. 10 gauge for table leg construction; No. 12 for table tops and sinks; No. 13 for shelves; No. 14 for bains-marie; No. 16 for sliding doors; No. 18 for cabinets and drawers. Drawer fronts are usually made of No. 12 gauge metal.

All gas cooking equipment is now insulated and ovens are thermostatically controlled. Time control signals are a new feature on bake ovens. Stainless steel ranges will be manufactured. Electricity in some areas is gaining in favor for all cooking and baking.

REFERENCES

(1) American Hospital Association: Hospital Review (No. 1): 52, 1945.
(2) Hudenberg, Roy: Basing the blue prints on adequate data. Hospitals 20: 51, 1946.
(3) American Hospital Association: Hospital Review (No. 1): 54, 1945.

Thiamin Content of Typical General and Soft Hospital Diets[1]

M. R. SHETLAR, MARTHA NELSON LEWIS, MARILYNN WINONA OTT, and ELIZABETH JANE KUTCHIN[2]

Ohio State University Hospital and Department of Agricultural Chemistry, Ohio State University, Columbus

RECENT reports concerning the thiamin contents of foods under different conditions indicate that the amount of this constituent may vary widely with varietal, growing, processing, storage, cooking, and serving conditions.

According to the work of Lincoln, Hove, and Harrel (1), thiamin losses in cooked cereals range from zero to 40 per cent as the time in cooking is increased from 5 to 120 min. Aughey and Daniels (2) found a thiamin destruction of 22 per cent for some vegetables boiled in water, and an additional leaching of 15 per cent into the cooking water. Meiklejohn (3) reported that thiamin is leached to a considerable extent from potatoes during steaming. Wertz and Weir (4) found a 14.1 per cent loss in steaming and a 16.7 per cent loss in mashing. Losses of 8.3 per cent and 6.4 per cent for whole and mashed potatoes, respectively, resulted after holding on a steam table for 1½ hr. Aughey and Daniels (2) reported 16 to 35 per cent losses in baked potatoes. Nagel and Harris (5), in a study of 9 vegetables commonly served in restaurants, determined the thiamin contents of the raw food, of the food immediately after cooking, and after 3 hr. on the steam table. Losses of different vegetables were variable and the authors apparently made no attempt to discover whether the losses were characteristic of the respective vegetables, or were merely random variations. However, they state in their discussion that 20 per cent of the thiamin was destroyed in cooking, 25 per cent was leached into the cooking water and 25 per cent was lost on the steam table. Fruits (including fruitlike vegetables), according to Addinall (6), are less subject to cooking losses because of their high acidity.

Meat products, as well as vegetable foods, lose thiamin in cooking. Elvehjem (7) found a loss of approximately 50 per cent in braised meat, and a 25 to 35 per cent loss in roasted and broiled meat when samples were taken exclusive of drippings. When drippings were included, little differences among cooking procedures were found. Schweigert, McIntire, and Elvehjem (8) report an average retention of thiamin during meat storage of 92 per cent; and during curing, of 73 per cent.

Much of the foregoing as well as more recent investigations are summarized by Adams and Smith (9).

Actual thiamin analyses of diets as served have occasionally been carried out. Flynn and Hogan (10) made thiamin determinations on both raw and cooked foods served to Army students, and found the average daily content to be 2.72 mg. in raw material as compared to 2.40 mg. for cooked foods. This figure is above the allowance of 2.0 mg. for active adult men as recommended by the National Research Council. On the other hand, Winter and Leslie (11) report a similar study of the diets of 12 young married women whose daily average thiamin intake was only 0.72 mg., or but 65 per cent of the recommended allowance of 1.1 mg. for sedentary women.

The purpose of this work was to determine by actual analysis the thiamin contents of typical general and soft hospital diets.

EXPERIMENTAL PROCEDURE

Sampling procedure. Samples of the soft diet and of the general diet as served at Ohio State University Hospital were collected for the de-

[1]Condensed from theses presented by E. J. Kutchin and M. W. Ott in partial fulfilment of the requirements for the degree of Master of Science.

[2]Instructor, Department of Agricultural Chemistry, Ohio State University; Director, Dietary Department, Ohio State University Hospital; Assistant Dietitian, Saginaw General Hospital, Saginaw, Michigan; and Dietitian, Midland Hospital, Midland, Michigan, respectively.

TABLE 1

Thiamin contents of foods as served during the 10-day period

FOOD	DESCRIPTION	NUMBER OF TIMES ON MENU		AVERAGE THIAMIN CONTENT
		Soft	General	
				mg./100 gm.
Fruits				
Apples	baked, peeled	1		0.0173
	baked		1	0.0087
	sauce, cooked the night before		1	0.0217
	sauce, French	1		0.0195
Apricots	juice	1		0.0130
Grapefruit	juice, commercial canned	1	1	0.0000
	halves		2	0.0000
Orange	juice, commercial canned	2		0.0499
	slices	2	3	0.0700
Prunes	juice	1		0.0000
	stewed		1	0.0391
Pears	halves	1		0.0087
Vegetables	hot, spiced	1	1	0.0087
Asparagus	canned, steamed	3		0.0478
	frozen, steamed		3	0.0913
Beets	cubes	3		0.0261
Beans	green, fresh		2	0.0544
	green, canned	2	1	0.0377
	Lima, frozen		1	0.1391
Brussels sprouts	steamed		1	0.0870
Cabbage	steamed		2	0.0500
Carrots	steamed	2	1	0.0405
Corn	canned, baked		1	0.0130
Mushrooms	soup, homemade	1		0.0826
Peas and carrots	frozen peas, fresh carrots		2	0.2108
Peas and potatoes	frozen peas, steamed		1	0.1522
Potatoes	browned		1	0.1087
	baked	3		0.0708
	steamed and buttered	3	1	0.0867
	steamed and creamed	1	2	0.1029
	steamed and mashed	1	2	0.0623
Spinach	canned	2		0.0174
	soup, strained creamed	1		0.1170
Succotash	frozen Lima beans and canned corn		1	0.0739
Sweet potato	baked	1	1	0.0782
Tomato	canned, strained, thickened	1		0.0217
Vegetable soup	homemade	1	1	0.0326
Meat and Fish				
Bacon	broiled		4	0.2892
Beef	dried, creamed	1		0.0652
	dried, creamed on rusk	1		0.0522
	dried, creamed on biscuit		1	0.0391
	dried, with escalloped potatoes		1	0.0652
Halibut	fried		1	0.0565
	flaked, steamed	1		0.0478
Herring	fried		2	0.0845
Hamburger	with noodles, steamed and baked	1		0.0391
Manhattan meal roll	ground meat in biscuit dough		1	0.0739
Mock drum stick	half veal, half pork		1	0.1522
Salmon	escalloped, baked	1		0.0956
	flaked, steamed	1		0.0565
Sweetbreads	steamed, creamed	1		0.0391
Trout	baked		1	0.0647
Tuna fish	creamed	1	1	0.2349
Veal stew	with potatoes, peas, carrots		1	0.1304

TABLE 1—*Concluded*

FOOD	DESCRIPTION	NUMBER OF TIMES ON MENU		AVERAGE THIAMIN CONTENT
		Soft	General	
				mg./100 gm.
Dairy Products				
Cottage cheese		2		0.0572
Ovaltine		1		0.0739
Whole milk	pasteurized	30	30	0.0639
Desserts				
Brownies	homemade		1	0.0739
Cake, yellow			1	0.0217
Cake, iced, sheet	bakery	1	1	0.0174
Cake, white, iced	homemade	1	1	0.0239
Cake, apricot upside-down			1	0.0174
Cherry cobbler	homemade		2	0.0369
Custard	baked	2	3	0.0478
Floating island	homemade	1		0.0522
Gingerbread	homemade		1	0.0174
Ice cream, vanilla	commercial	3	1	0.0413
Jello, with custard sauce		1		0.0130
Jello, plain		1		0.0000
Jello, fruit			1	0.0130
Meringue, with orange sections			1	0.0348
Meringue, with custard sauce		1	1	0.0054
Peach meringue		1	1	0.0391
Pie, Boston cream	homemade	1	1	0.0413
Pudding, lemon	homemade	1		0.0213
Pudding, chocolate	homemade	3	2	0.0522
Pudding, vanilla	homemade	1	1	0.0435
Pudding, vanilla, with bananas	homemade		1	0.0652
Breads and Other Cereals				
Bread	whole wheat		20	0.2203
	commercial, white, enriched	20		0.2513
Sweet rolls	from commercial bakery		3	0.0678
Toast	whole wheat		7	0.2222
	commercial, white, enriched	10		0.2493
Corn flakes	enriched	1		0.4570
Pettijohns	cooked the night before		1	0.0435
Ralston	cooked the night before	5	5	0.0596
Rolled oats	cooked the night before	2	2	0.0456
Wheatena	cooked the night before	2	2	0.0196
Macaroni and cheese	baked	2		0.0412
Rice	steamed, creamed	1		0.0304
Noodles and tomatoes	noodles steamed and added to hot tomato juice	1		0.0304
Spaghetti	buttered	1		0.0087
	baked with tomatoes	2	1	0.0315
	with Spanish sauce		1	0.0435
Poultry Products				
Chicken	baked with noodles		1	0.0174
	ground, steamed, creamed	2		0.0153
	with vegetable pie		1	0.0783
Eggs	deviled	1		0.0608
	poached	5	2	0.0860
	scrambled	2	1	0.0652
	soft-cooked	4	1	0.0782

termination of the thiamin content. Samples from a total of 10 days' diets were obtained on alternate days, 3 days a week.

The food was prepared in the main kitchen on the ground floor of the hospital, and sent to the various floor kitchens in electrically-heated carts from which each individual tray was served. In order to obtain samples representative of the food actually received by the patients, an additional breakfast, lunch and dinner tray was ordered for this study on the days that collections were made. The serving period varied from 20 to 40 min. Since the experimental tray was the last to be served, the food remained on the cart for an average of 30 min.

TABLE 2

Thiamin content of the soft diet by days

DAY	ANALYZED VALUES	CALCULATED VALUES	DIFFERENCE*
	mg.	*mg.*	%
1	1.0212	1.287	20.65
2	0.9598	1.374	30.14
3	0.9751	1.031	−5.42
4	1.1360	1.101	3.18
5	1.1839	1.331	11.05
6	1.1495	1.201	4.28
7	1.6208	1.373	−18.05
8	1.1310	1.197	5.5
9	0.9971	1.264	21.1
10	1.2253	1.385	11.5
Average.....	1.1400	1.2544	9.12

* Calculated value minus analyzed value divided by calculated value.

The serving weight of each food item was recorded and an aliquot portion taken for thiamin analysis. Each food, with the exception of butter, bread, toast and milk, was analyzed separately. Because of its probably slight effect on the daily thiamin intake, the thiamin content of butter samples was not determined. An explanation of the collection of bread, toast, and milk samples follows:

Bread. The weight of single slices varied, depending upon size and moisture content. It was, therefore, considered desirable to determine the vitamin content on a dried sample and calculate the value on the basis of fresh weight. Samples from entire loaves were taken because it was thought that the value obtained would be more representative than values of slices taken at random. Two loaves were analyzed and it was assumed that the same brand of bread would not vary appreciably during a 1-month period. To ensure homogenous sampling, 5 slices were taken from different positions in the loaf: one slice next to the heel on each end, a center slice, and a slice midway between these two. The slices were weighed, air-dried at room temperature, reweighed, and ground. A sample of suitable weight was taken for the determination.

Toast. Five slices adjacent to those taken for the bread determination were toasted in the usual manner in the serving kitchen, then treated according to the procedure outlined above.

Milk. Rather than collect a sample from each tray at each meal, one aliquot was taken daily, and the result obtained was used as the value throughout the day.

Thiamin analyses of foods were started 10 to 15 min. after each meal. Determinations were made by a modified thiochrome procedure used in the Department of Agricultural Chemistry, Ohio State University.

A 1 to 10-gm. sample of food which did not require grinding to obtain homogeneity was weighed on a torsion balance and placed in a 100-ml. volumetric flask containing 50 ml. 0.1 N H_2SO_4. The sample weight was doubled for foodstuffs which did require grinding. These samples were placed in a Waring Blendor with 100 ml. 0.1 N H_2SO_4, mixed

TABLE 3

Thiamin content of the general diet by days

DAY	ANALYZED VALUES	CALCULATED VALUES	DIFFERENCE*
	mg.	*mg*	%
1	1.1274	1.298	13.14
2	1.3080	1.434	8.79
3	1.1616	1.225	5.17
4	1.1296	1.422	20.56
5	1.3951	1.954	28.60
6	1.4354	1.304	−10.08
7	1.5146	1.330	−13.88
8	1.0572	1.270	16.76
9	1.2399	1.679	26.15
10	1.1793	1.601	26.34
Average.....	1.2548	1.4517	13.56

* Calculated value minus analyzed value divided by calculated value.

for 2 or 3 min., and transferred to a 200 or 250 ml. volumetric flask. The process was then carried out exactly as for other samples except that all other reagents used for extraction were doubled in quantity. The mixture was shaken vigorously and the sides of the flask washed down with an additional 25 ml. 0.1 N H_2SO_4. The flasks were then placed in a boiling water bath for 30 min. After cooling to 50°C., 5 ml. 2.5 M sodium acetate containing 0.5 gm. clarase was added to each 100-ml. flask. Meats were treated with 5 ml. 2.5 M sodium acetate containing 0.3 gm. clarase and 0.1 gm. papain. The samples were then incubated for at least 90 min. at 40 to 45°C. (samples containing papain and samples from the evening meal were always incubated overnight), after which they were cooled, made up to volume with distilled water and centrifuged.

Ten to 25 ml. aliquots of the supernatant liquid were passed through a prepared Decalso tube. The tube was washed three times with 10 ml. portions of distilled water. The thiamin was then eluted by passing 25 ml. 25 per cent KCl in 0.1 N HCl through the tube. The eluate was made up to a total volume of 25 ml., and 5-ml. portions were taken for oxidation to thiochrome.

Three aliquots for the oxidation procedure were placed in glass-stoppered separatory funnels. To two of them, 1 ml. potassium ferricyanide was added and mixed, followed with 3 ml. 15 per cent NaOH and immediately thereafter by 15 ml. isobutyl alcohol. The mixture was shaken vigorously for approximately 1½ min. The third aliquot served as a blank and was treated the same as the first two except that

a small amount of sodium hydrosulfite was added before the potassium ferricyanide. After allowing the two layers to separate, the aqueous layer was drawn off and discarded. The isobutyl alcohol layer containing the thiochrome was poured into a test tube and 1 ml. 95 per cent ethyl alcohol added to clarify it. Its fluorescence was then determined on a Pfaltz & Bauer Fluorophotometer Model A, using a Pfaltz & Bauer vitamin B_1 glass standard set at a reading of 50 on the galvanometer scale.

Several times throughout the period the glass standard was calibrated with a standard solution of thiamin hydrochloride. Five-ml. portions (containing 1 mcg. thiamin) were oxidized in the same manner as the samples. A 1-mcg. solution gave a reading of 23 when the glass standard gave a reading of 50.

All values were calculated from the following formula:

$$\frac{\text{Reading of sample}}{\text{Reading of standard solution}} \times \gamma \text{ of } B_1 \text{ in standard solution}$$

$$\times \frac{\text{total volume of eluate}}{\text{aliquot of supernatant liquid}} \times \frac{\text{total volume of sample}}{\text{ml. of eluate oxidized}}$$

$$\times \frac{1}{\text{weight of sample}} = \text{mcg. vitamin } B_1 \text{ per gm. of material.}$$

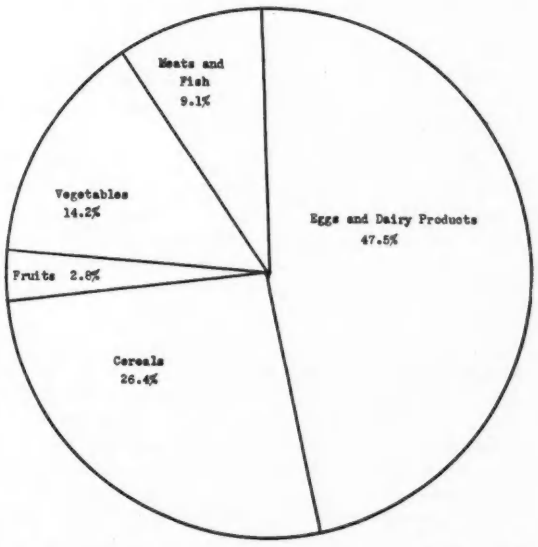

FIG. 1. PERCENTAGE OF TOTAL THIAMIN FURNISHED BY EACH OF FOOD GROUPS IN THE SOFT DIET

RESULTS

The average thiamin contents of the individual foods served on both diets are recorded in Table 1; Tables 2 and 3 contain a summary of the thiamin contents of the diets by days. The daily thiamin contents vary between 0.9598 and 1.6208 mg. with an average of 1.1400 for the soft diet, and between 1.0572 and 1.5146 with an average of 1.2548 mg. for the general diet. Values calculated from Bowes and Church (12) for each day's diet are likewise shown in Tables 2 and 3. Contribution of each nutrient class is shown graphically (Fig. 1 and 2).

DISCUSSION

Results reported in Table 1 vary considerably from values listed by Bowes and Church (12). However, the determined values show no consistent tendency to be either higher or lower than the recorded ones. Consequently, variations from the recorded values tend to cancel out and the average thiamin contents (Tables 2 and 3) of the diets were only slightly lower than those calculated from the values of Bowes and Church. The difference between the calculated and the determined values of 9.12 per cent for the soft diet and 13.56 per cent for the general diet can hardly be considered of significant importance. As the values of Bowes and Church are based largely upon the thiamin contents of cooked foods, the results tend to indicate that there is little loss during the relatively short serving period. It is interesting to compare these data with those of Nagel and Harris (5) in which a much longer serving period was used.

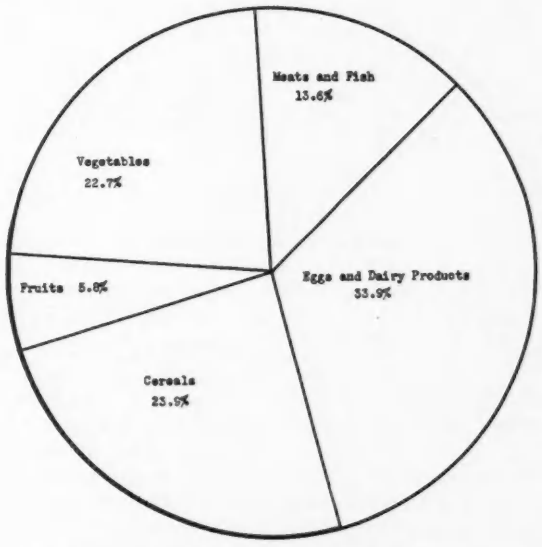

FIG. 2. PERCENTAGE OF TOTAL THIAMIN FURNISHED BY EACH OF FOOD GROUPS IN THE GENERAL DIET

SUMMARY AND CONCLUSIONS

The thiamin contents of typical soft and general diets were determined for a period of 10 days. The average daily thiamin contents of these diets were only slightly lower than those obtained by calculation from nutritive charts which record thiamin values for cooked foods.

Apparently with improved methods of preparation and service the thiamin content of a varied diet as a whole can be accurately forecast by the use of a proper nutritive chart.

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Kitchen Planning Should Encourage Cleanliness, Discourage Fatigue

The problem of producing a given amount of food in a given period of time has been the alpha and omega of many kitchen designers. Actually it is far from being the beginning; it is merely the end.

The focal points from which the progression of kitchen design generates are cleanliness and the elimination of employee fatigue. Recently a Chicago research group made a survey of several dozen restaurants of all types. Two glaring deficiencies in kitchen design were spotlighted: (a) the difficulty of cleaning, and (b) the comparatively abnormal amount of bending, stooping, lifting, floor work, and onerous labor in the average kitchen.

Cleanliness is not an inherent factor in any kitchen. Equipment and installations that keep themselves clean automatically cannot be built, but they can be designed and fitted with appliances that encourage easy cleaning. This is one of the major factors that should control the *kind* of equipment used in any kitchen. Moreover, it is of significant importance in determining how the equipment is to be installed.

Further than that, there is a definite relationship between an easily cleaned kitchen and its efficiency. One which is difficult to clean, is expensive and inefficient to operate, whether large or small.

Of equal importance is the essential endowment of a kitchen with employee fatigue elimination, or, at least, reduction to a minimum. One of the costliest hidden losses in operation—in fact, greater than fuel waste, silver losses, crockery breakage, and garbage cans full of spoiled goods—is that single item of employee fatigue.

The factors which contribute most to the sum total of employee fatigue are: insufficient clean air; excessive stooping, bending, and lifting from uncomfortable levels; excessive weight movement without lifting devices; and prolonged—often unnecessary—standing. Under the proper working conditions, it is far more likely that your operating costs will go down and your operating efficiency up.

Cleanliness and fatigue reduction are, or course, commonly acknowledged kitchen requirements. They have a definite effect on layout design. First, there is a substantial effect upon the allocation of kitchen floor space. It is rudimentary that, in order to clean anything, it is necessary to get around it. Such space is required *in addition* to that needed for service traffic, although in actual layout, the space requirements of both may be combined wherever feasible. Nothing that is inherently dirt-producing should ever be permanently fixed along the wall, for instance. Cooking and cleaning equipment should be in the middle of a room or, at least not nearer to a wall than 2 ft. In turn, the need for correctly designed cooking units now becomes apparent.

Second, fatigue reduction needs adequate floor space and plentiful cubical contents in rooms. These added square feet of kitchen space area avoid congestion; they augment the installation of good, labor saving equipment. And the provision of ample air capacity in the room, in turn, means lower ambient temperatures, and less pollution and contamination per cubic foot of air; and still further, easy movement of portable equipment is made possible.—*Daniel J. Brogan, The G. S. Blodgett Company, in an address before the Texas Restaurant Association.*

Nutritional Status of Women Students[1]

MARIE S. GUTOWSKA, Ph.D., and EVELYN B. ELLMS, M.D.

Nutrition Laboratory, Massachusetts State College

INFORMATION concerning the basal energy requirement and the adequacy of the nutrition of various population groups is of great significance and interest. The evaluation of the nutritional status, however, presents a complicated procedure (1). Chemical, anthropometric, and physiological tests should be applied (2), which are not only complicated, but often impossible, because of the inevitable limitations in time, personnel, and equipment. A modern complete survey of the nutritional status of a population group also includes a study of food consumption. Furthermore, the findings of such a survey must be based on sufficient data, and usually only comparatively small samples can be obtained. Such results receive serious criticism from a statistical standpoint. However, even incomplete and crude measurements give valuable information for comparative purposes. With this in mind, the following study was undertaken. The immediate objective was to determine some of the characteristic features of the nutritional status of the young women students of Massachusetts State College and thus to add a fragment of information from an eastern state. Data on the nutritional status of college women of seven midwestern schools has been reported recently by Donelson *et al.* (3).

The basal metabolism of women students has been studied in several states. Although the review of the literature and the research conducted by Shock (4) indicate that climatic factors do not have a significant effect on the basal metabolism of humans, the opposite conclusion has been drawn from a few earlier studies. Thus Tilt (5), Tilt *et al.* (6) in Florida, and Coons in Oklahoma (7) have found basal rates of 10 to 14 per cent and 12 per cent respectively, below the DuBois standard, whereas Rogers (8) in Connecticut observed rates only 2.3 per cent below this standard. The possible influence of altitude on basal metabolism was also indicated by a few investigators. Thus, the study of McKittrick (9) in Wyoming implied a rise of basal metabolism at a higher altitude. However, Lewis and co-workers (10) reported from Colorado and Oklahoma that change in altitude at levels below 9000 ft. did not affect the basal metabolism. This confirmed numerous studies of European investigators. Loewy *et al.* (11) and Barcroft *et al.* (12) found that while considerable variation occurred in the basal metabolic rates, no marked effect was evident in altitudes below 10,000 ft.

EXPERIMENTAL PROCEDURE

This study was carried out in Amherst, Massachusetts, located in middle latitude and at an altitude of 262 ft. above sea level.

A general physical examination of 161 girls was carried out. Height, weight, and the bi-iliac diammeter were measured. The hemoglobin level of the blood was tested. The basal metabolic rate was determined on 83 girls. The age of the students ranged between 17 and 22 years. The socio-economic status varied.

The clinical examination of the girls revealed no evidence of quantitative underfeeding, but subclinical symptoms of qualitative nutritional failures were found not infrequently. The outstanding defect observed was dental caries. Twelve per cent of the girls had no cavities present or past, and were graded as having excellent teeth. Eighty per cent had from 4 to 8 cavities, past caries, and fillings, and were graded as having satisfactory teeth. Eight per cent had poor teeth, *i.e.* more than 8 cavities, caries, and fillings per mouth.

The data on hemoglobin levels, determined by the acid hematin method, may be summarized by indicating that the range of hemoglobin variation was from 9.5 to 16.0 per 100 ml. of blood. The mean of these values was approximately 13.8, which cor-

[1]Contribution No. 578 of Massachusetts Agricultural Experiment Station. Received for publication November 20, 1945.

responded to the mean of hemoglobin values previously reported for "normal" (13) female individuals. Ten per cent of the girls were slightly below this standard, and 1.6 per cent had a hypochromia.

The data on stature indicated considerable variability. The number of extremely short statures was larger than that of extremely tall statures. The largest group measured 157.5 cm. (5 ft. 1 in.), the next largest 164 cm. (5 ft. 4 in.), and 171 cm. (5 ft. 6 in.). The mean height in inches for the entire series was: 64.45 ± 1.47; standard deviation 2.766 ± 0.10. This mean corresponds to 164 cm. The results of the measurements of the bi-iliac diameter (14) may be summarized by indicating that 52 per cent of the girls could be considered as being of a slender build (slight frame), 37 per cent of an intermediate type (medium frame), and 11 per cent of a stocky frame and type.

The range of variation in body weight was great. The largest number of girls was found in the group weighing from 61.5 kg. (135.3 lb.) to 63.5 kg.(139.7 lb.). The number who were "overweight" was considerably larger than those "underweight." The mean weight in pounds, was 130.69 ± 1.15; standard deviation 21.56 ± 0.81. This mean corresponds to 59.1 kg. In comparing these figures with the Baldwin and Wood (15) standards it was found that the Massachusetts State College girls had an average deviation of 8.5 lb. (approximately 4 kg.) more than the predicted weight.

The determinations of values for basal oxygen consumption were made using the Benedict-Roth kymographic apparatus in a laboratory at 19–21°C. The basal metabolic rates were computed according to the DuBois method, as modified by Boothby and Sandiford of the Mayo Clinic (16) and calculated in reference to age, weight, height, and surface area. The subjects were chosen on the basis of their willingness to cooperate in this study.

Two 6-min. tests were made on each individual in post-absorptive state, early in the morning, during two or three test periods. The lowest figures for oxygen consumption were used for the computation of heat production.

After arriving at the laboratory, the subjects reclined on comfortable cots for 45–60 min. The pulse and respiratory rates were counted and the body temperatures recorded.

RESULTS

The data may be summarized by indicating that the basal caloric expenditure of Massachusetts State College women students per 24 hr. varied from 1133 to 1800 calories, the average value being 1435 calories. The basal caloric expenditure per square meter of body surface per hr. ranged from 31.86 to 46.87 calories, with an average of 36.5 calories. The basal caloric expenditure per cm. of height varied from 7.26 to 10.5 calories, with an average of 8.8 calories per cm. per 24 hr. The basal caloric expenditure per kg. of body weight varied from 17.37 to 32.37 calories, averaging 24.0 calories per kg. per 24 hr.

Table 1 presents data on the percentage variations in basal metabolic rate of the Massachusetts girls in relation to age. The percentage deviations as calculated from the DuBois standard modified by Boothby and Sandiford (16) ranged from −22.5 to + 22.5. Of the 83 subjects, 28.9 per cent had a basal metabolic rate close to the predicted value, (24 subjects showing a percentage variation from the standard of from −2.6 to +2.5). Approximately

TABLE 1

Percentage variation in basal metabolic rate of Massachusetts State College women students

BASAL METABOLIC RATE*	SUBJECTS					
	Age in years				Total number	Percentage of total
	17	18	19	20–22		
−22.6– −17.5		1		1	2	2.4
−17.6– −12.5		1		1	2	2.4
−12.6– − 7.5	4	11	4	2	21	25.3
− 7.6– − 2.5	4	9	4	1	18	21.6
− 2.6– + 2.5	11	9	3	1	24	28.9
+ 2.6– + 7.5		4	1		5	6.0
+ 7.6– +12.5		3	1		4	4.7
+12.6– +17.5	1	3	1		5	6.0
+17.6– +22.5				1	1	1.2
Above +22.5	1				1	1.2
Total number of subjects	21	41	14	7	83	
Mean basal metabolic rate	−0.95	−2.32	−2.14	−5.71	−2.23	
Standard deviation	7.96	8.27	6.41	12.08	7.7	

* Percentage deviation from standard computed by the DuBois method as modified by Boothby and Sandiford (16).

52 per cent of the subjects, however, had basal metabolic rates lower than the standard, the deviations ranging from −2.5 per cent to −22.5 per cent. On the other hand 19.4 per cent had basal metabolic rates above the value predicted for their surface area, the deviations ranging from +2.6 to +22.5 per cent. The mean value for the 83 subjects was −2.23 per cent below the standard. This range of variation should not be considered normal due to the fact that all the girls willing to cooperate in this study were not normal. Some of them had had their basal metabolic rates determined repeatedly and were under treatment. These cases, however, were not excluded because of the primary interest in deter-

mining the physiological status of the students, and observing the defects encountered.

If a deviation of ±15 per cent from the mean should be considered as normal, the data of Table 1 indicate that from 6 to 7 per cent of the total number of students had a basal metabolic rate definitely below or above the normal range.

If a comparison were made between the mean values of the basal metabolic rates found for Massachusetts State College women students with the values obtained for other American colleges, the conclusion would be drawn that the value for Massachusetts State College women students was closest to that found for Connecticut women students, whose mean average deviation from standard was − 2.3 per cent; next were the Wyoming students, having an average deviation of − 3.2 per cent; Oklahoma, −13.2 per cent; and last, the Florida students, −10.6 and −14.1 per cent. The results of such a comparison, however, cannot be considered as conclusive because of the large variations in each group, the different techniques used by different investigators in selecting their sample, and the comparatively small numbers of subjects studied.

SUMMARY

The herein reported study was undertaken from the viewpoint of accumulating data on the nutritional status of Massachusetts State College women students. The mean height of the examined girls was 164 cm.; the mean weight 59.1 kg. The outstanding defect observed was dental caries. Hemoglobin levels were determined by the acid hematin method. The range of hemoglobin variation was from 9.5 to 16.0 gm. per 100 ml. of blood; the mean approximately 13.8 gm. per 100 ml. of blood. The basal metabolic rates were determined using the Benedict-Roth kymographic apparatus in reference to age, weight, height, and surface area. The mean percentage variation, as calculated from the DuBois standard, for the entire group was − 2.23, which is closest to the value found for Connecticut women students. The total basal caloric expenditure per 24 hr. varied from 1133 to 1800 calories, with an average of 1435 calories. The basal caloric expenditure per square meter of body surface per hr. ranged from 31.86 to 46.87 calories, the average being 36.50 calories per hr. The basal caloric expenditure per cm. of height varied from 7.26 to 10.5 calories, the average being 8.8 calories per cm. per 24 hr. The basal caloric expenditure per kg. of body weight varied from 17.37 to 32.37, the average being 24.0 calories per kg. per 24 hr.

ACKNOWLEDGMENT

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Dietary Requirements for Fertility and Lactation[1]

XXXIII. Brewers' and Cultured Food Yeasts as Sources of Proteins and the Vitamin B Complex for Growth, Reproduction and Lactation

BARNETT SURE[2]

THE great scarcity of protein foods in Europe precipitated by this world war stimulated an intensive study of the biological value of brewers' yeast and several strains of cultured food yeasts for growth, reproduction, and lactation.

In a recent preliminary report on the biological value of food yeast proteins (1) it was pointed out that the literature in this field is scanty and conflicting. A number of workers report that the proteins in yeasts are deficient in cystine or methionine (2, 3, 4).

As early as 1919 Osborne and Mendel (5) found that brewers' yeast, fed at 30 and 40 per cent planes of intake, as the only sources of protein, promoted good growth in rats for a period of one year. The sterility encountered on their rations was probably due to vitamin E deficiency, since 9 per cent butter fat provided all the fat-soluble vitamins in their rations.

In 1923 Nelson, Heller, and Fulmer (6) reported the results on growth, reproduction, and lactation on air-dried yeast, *Saccharomyces cerevisiae*, fed at 25 to 50 per cent levels as the only source of protein in the rations. These figures correspond to 11.5 to 23.0 per cent crude protein in the diets. Third generation animals were reared on 30 to 45 per cent of yeast in the rations. In practically all cases, however, the growth rate of the second and third generations was below the normal rate, although the second generation young have almost without exception proved fertile.

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[2]With the technical assistance of Leslie Easterling, Joy Dowell, and Mary Crudup, Department of Agricultural Chemistry, University of Arkansas, Fayetteville.

EXPERIMENTAL PROCEDURE

The experiments were conducted in groups of 6 animals, consisting of 5 females and 1 male in each experimental set-up. The animals were started on experiments when 30 to 35 days old and weighed 50 to 70 gm. each. The yeasts served as the only source of protein, the vitamin B complex, phosphorus, potassium, magnesium, and all the trace elements in the rations. In the third generation, however, in the case of brewers' yeast, it was necessary to supply a complete salt mixture (7). Since space did not permit lactation studies on continuous generations with the cultured yeasts, no information is available regarding the need for mineral supplements for optimum growth in succeeding generations. The fat-soluble vitamins were provided in the rations by incorporation of 2 per cent cod liver oil, 5 per cent butter fat, and 3 per cent wheat germ oil. When, later in the course of this investigation, it became apparent from the literature that butter fat does not contain any hitherto unrecognized fat-soluble vitamins (8) this fat was removed from the rations of second generation animals and additional fat-soluble vitamins were provided. Three drops of halibut liver oil, as a further source of vitamins A and D, were given to each animal once weekly. This was increased to three drops three times weekly per rat from the period of mating to the termination of the experiments. As a further source of vitamin E, a concentrate was used, consisting of 34 per cent tocopherol[3]. One drop of this concentrate, equivalent to about 8 mg. of tocopherol, was administered once weekly to each animal. This was increased to 2 drops once weekly per animal from the time of breeding

[3]Furnished by Dr. K. L. Harris of the Distillation Products, Inc., Rochester, N. Y.

and through the periods of reproduction and lactation. All rations were fortified with 1 per cent NaCl, 2 per cent $CaCO_3$, 0.18 per cent ferric citrate, 0.025 per cent manganese sulfate (anhydrous) and 0.005 per cent KI. No NaCl was added to the rations of the animals on Strain Kitchen Food cultured yeast, because this yeast contained 5 per cent of this salt. Cerelose (dextrose) was the source of the carbohydrate. The technique used for the lactation studies was essentially the same as that described in 1928 (9).

TABLE 1

Percentage of nutrients in five strains of yeast

NUTRIENTS	DEBITTERED BREWERS' DRIED YEAST STRAIN K	CULTURED DRIED YEASTS			
		Strain Kitchen Food	Strain G	Strain 90	Strain 300
Total protein (N × 6.25)	48.8	45.0	46.3	50.0	54.5
True protein (90% of total protein)	43.9	40.5	41.7	45.0	49.0
Total fat*	1.5 to 2.5	2.5 to 3.5	2.5 to 3.5	2.5 to 3.5	2.5 to 3.5
Ash*	6 to 7	6 to 7.5	6 to 7.5	6 to 7.5	6 to 7.5
Moisture*	3 to 5	3 to 5	3 to 5	3 to 5	3 to 5
NaCl*	0	5.0	0	0	0
Thiamin†	150	225	150	270	900
Riboflavin†	40	400	75	75	75
Pyridoxine†	40 to 60	40 to 60	40 to 60	40 to 60	40 to 60
Pantothenic acid†	40 to 60	120 to 160	120 to 160	120 to 160	120 to 160
Nicotinic acid†	250	400	250	250	250

* These figures were obtained from the manufacturers.

† Expressed as micrograms per gram. Figures were obtained from the manufacturers.

The chemical composition of the yeasts is given in Table 1. It will be noted that the yeasts contain 45 to 55 per cent crude protein and that they are all abundant in thiamin, riboflavin, pyridoxine, pantothenic acid, and niacin. They are also high in ash, particularly in phosphorus, potassium, and magnesium; hence, it was not necessary to add these mineral elements to the rations during the first and second generations. Yeasts contain non-protein nitrogen such as purines and pyrimidines. For this reason a minimum deduction of 10 per cent was made in calculating the total protein in these yeasts as suggested in a personal communication from Dr. H. E. Carter[4]. Thus, the true protein content of the yeast used in this study is represented by 90 per cent of N × 6.25.

RESULTS

Brewers' Yeast, Strain K. This is a pure debittered yeast obtained from brewing. It has been dried at pasteurizing temperature and is non-fermentable. It was fed in the presence and absence of cystine supplementation at 20, 30, and 40 per cent levels of intake, introducing 8.8, 13.2, and 17.6 per cent true protein in the rations, respectively. A cystine deficiency was found only on the 8.8 per cent protein intake. On this level of protein intake, growth was poor and reproduction a failure. The addition of 0.2 per cent cystine in this ration resulted in increased growth, good reproduction and a fair success in lactation (Table 2). However, on the 13.2 per cent protein plane of intake, growth and reproduction were excellent in the first and second generations, and lactation was excellent in the first and good in the second generation. On the 17.6 per cent protein level, growth was excellent in the first, second, third, and fourth generations, and reproduction and lactation were excellent in the first, second, and third generations. As a matter of fact, the reproduction and lactation on brewers' yeast, as the only source of proteins and the vitamin B complex, compare favorably in efficiency to that obtained in this laboratory since 1920 on stock diets composed of natural foods.

Cultured Food Yeast, Strain G. This is a pure primary yeast grown in a special hop-free media. It was dried at pasteurizing temperature and is non-fermentable. Growth on 16.7 per cent of strain G yeast proteins in the diet was comparable to that obtained on 15 per cent pure casein in the first and second generations. Growth of the second generation animals is shown in Figure 1. The lactation efficiency was 83.3 per cent. One female out of five, however, was sterile during a reproductive period of 115 days.

Cultured Food Yeast, Strain Kitchen Food. This is a non-fermentable food product prepared from primary yeast (Strain G) and intended for enriching and flavoring cooked foods. It is composed of partially autolyzed yeast to which 5 per cent NaCl has been added. It is particularly rich in riboflavin, containing 400 mcg. per gm. which should make it particularly useful as a concentrated food-product in human cases of ariboflavinosis. The results on this strain of cultured food yeast are outstanding. On as low a protein intake as 8.1 per cent, repro-

[4]Department of Biochemistry, University of Illinois, Urbana.

TABLE 2

Brewers' yeast and cultured food yeasts as the only source of proteins and the vitamin B complex for reproduction and lactation

YEAST	YEAST IN RATION	PROTEIN IN RATION	GENERATION	REPRODUCTION PERIOD	NUMBER OF FEMALES	NUMBER OF LITTERS	TOTAL YOUNG BORN	YOUNG GIVEN TO REAR	YOUNG REARED	YOUNG REARED
	%	%		days						%
Brewers' (K)	20	8.8	First	56	5	0	0			
Brewers' (K) + Cystine	20	8.8	First	90	5	6	50	29	18	62.1
Brewers' (K)	30	13.2	First	127	5	9	70	54	46	85.2
Brewers' (K)	30	13.2	Second	88	5	5	32	27	18	66.6
Brewers' (K)	40	17.6	Second	88	5	6	41	35	33	94.3
Brewers' (K)	40	17.6	Third	80	11	11	94	66	61	92.4
Kitchen Food	20	8.1	First	104	5	5	41	28	9	32.1
Kitchen Food + Cystine	20	8.1	First	95	5	6	51	33	18	54.6
Kitchen Food	30	12.1	First	141	5	11	76	58	34	58.6
Kitchen Food	40	16.2	First	141	5	6	52	34	30	88.3
Cultured (G)	40	16.7	First	115	5	4	27	18	15	83.3
Cultured (90)	40	18.0	First	123	5	11	59	45	30	66.6
Cultured (300)	40	19.6	First	108	5	7	48	35	26	74.3

duction was good and it was possible to rear 32.1 per cent of the young. The addition of 0.2 per cent cystine in the ration resulted in an improvement of 22.5 per cent in lactation. On a level of 12.1 per cent protein in the ration, growth was as good as obtained on 15 per cent casein, reproduction was excellent, and 58.6 per cent of the young were successfully reared. Increasing the protein intake to 16.2 per cent resulted in excellent lactation, *i.e.*, 88.3 per cent efficiency (Table 2).

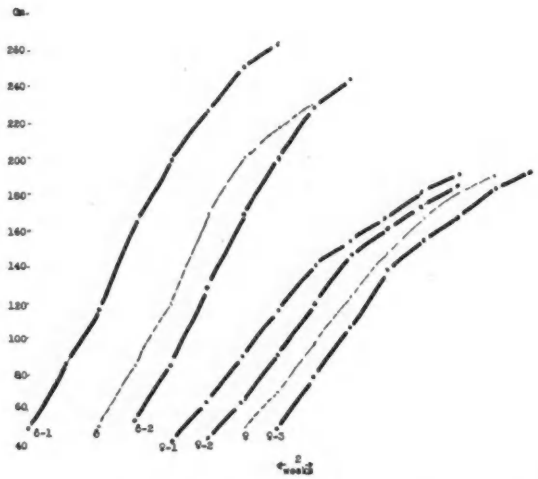

FIG. 1. *Growth of second generation albino rats on primary cultured yeast (G) 40 per cent in ration providing 16.7 per cent proteins. Curves in dotted lines represent the growth of albino rats on 15 per cent casein as the only source of protein in ration.*

Cultured Food Yeasts, Strains 90 and *300*. These are pure primary dried yeasts grown in a special hop-free media enriched with extractives of by-products from corn products and malting operations.

These yeasts have been dried at pasteurizing temperatures and are non-fermentable. First and second generations have been obtained with these yeasts and the growth during a period of four months in the second generation was as good as in the first. On 13.5 and 14.7 per cent protein levels, respectively, growth equalled that obtained with 15 per cent casein. Reproduction was good with both yeasts. Lactation efficiency with Strains *90* and *300* was 66.6 and 74.3 per cent on 18.0 and 19.6 per cent planes of protein intake, respectively (Table 2), which is a good record, considering that these yeasts provided all the protein in the ration without any amino acid additions.

DISCUSSION AND CONCLUSION

As much as 40 per cent of the Strain K brewers' yeast in the ration for four generations, and 40 per cent of the four strains of cultured food yeasts for two generations showed no laxative or other ill effects, the reason being that all these yeasts are non-fermentable. All the yeasts used in this study are palatable and, therefore, could be introduced in every day cookery.

Block (10) has recently found brewers' and cultured food yeast proteins to be complete from the standpoint of composition of amino acids. Eight commercially available yeasts have been analyzed for arginine, histidine, lysine, tyrosine, tryptophane, cystine, methionine, threonine, leucine, isoleucine, and valine, under highly comparable conditions.

His results indicate that the amino acid content of *Saccharomyces cerevisiae* (to which class belong the strains of yeasts used in this study) is quite constant, though it may vary somewhat, depending upon the variety and the nutritive media. Dr. Block states: "Yeasts are especially valuable food supplements in dietaries where cereal grains furnish all or almost all of the dietary protein." That Dr. Block is quite correct in his concept is apparent from the data submitted in this paper and from the data recently published in this JOURNAL (11).

SUMMARY

Experimental data are submitted showing excellent growth, reproduction, and lactation on one strain of brewers' yeast and four strains of cultured food yeasts as the only source of proteins, vitamin B complex, and certain mineral elements.

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FAO Copenhagen Conference

ON SEPTEMBER 2 in Copenhagen, Denmark, the second conference of the Food and Agriculture Organization will convene. Delegates from 42 nations, plus observers, will attend this meeting which is scheduled to last two weeks. Problems to be studied include:

(a) Proposals for long-term international food program to prevent both shortages and surpluses of food and other farm products;
(b) A comprehensive world food survey based on information from 70 countries;
(c) A draft agreement covering relations between the FAO and the United Nations;
(d) The first annual report of the Director-General;
(e) A development plan for forestry and forest products.

FAO grew out of the United Nations Conference on Food and Agriculture held at Hot Springs in May, 1943. It became the first of the permanent United Nations organizations in October, 1945 in Quebec.

All of the FAO's activities involve information, the organization acting as a vast clearing-house for all kinds of information dealing with food and agriculture. It is also an international adviser. Governments may request FAO to send special missions to study and advise on specific or general problems. The first of such missions recently went to Greece to study that country's agriculture and fisheries from a broad standpoint and make recommendations for long-term development projects to fit Greek Agriculture to the national economy as a whole.

The Change in Thiamin Content of Breakfast Cereals During Cooking[1]

E. G. WHITE, MARGARET MURRAY, and D. J. MAVEETY

National Biscuit Company Laboratory, New York.

IN THE past few years several reports have been published on the destruction of thiamin during the preparation of hot breakfast cereals. Lincoln, Hove, and Harrel (1), and Hanning (2) found there was little loss of thiamin in the cooking of cereals. Slater and Rial (3) found little loss of thiamin in cooking rolled oats. Robinson, Hiltz, Campbell, and Levinson (4) cooked a number of cereals. Some samples showed a large loss of thiamin. In most of the samples less than 20 per cent was destroyed and in about one half of the cases the loss was less than 10 per cent. Eklund and Goddard (5) found that there was no loss in thiamin in quick-cooking an enriched farina of high *p*H but instead there was an increase from 3.2 mcg. per gm. in the raw cereal to 4.2 mcg. per gm. in the cooked cereal.

In previous unpublished work in this laboratory it was found that there was some destruction of thiamin in all cases in the cooking of cereals. It was decided to repeat this work because of the lack of agreement among investigators.

EXPERIMENTAL PROCEDURE

Seven different widely used cereals that were purchased in grocery stores in New York City were used in these tests. The type of cereal and the moisture and thiamin content of each cereal as received are given in Table 1.

To avoid an error in sampling due to a possible lack of uniformity of the sample, each box of cereal was emptied on a large square of paper, and rolled back and forth for thorough mixing. One fourth was ground and used for the analyses reported in Table 1. Another quarter was taken to the test kitchen where each cereal was prepared according to the directions on the label, using water and salt in the proportions specified. Each sample was cooked over direct heat, according to the time indicated on the label. This direct heat method of cooking the cereal in a saucepan was used because it is the method most generally preferred by the consumer, and it was desired to approximate home preparation in all instances.

The cereals were prepared with as few variables as possible in the actual procedure. The front, left-hand surface unit of the electric range was used for all tests. The measured amount of water and salt were brought to a boil over high heat, the cereal stirred in slowly to maintain a rolling boil after which the unit temperature was reduced to the third heat for the remainder of the cooking time. The only exception here was No. 7 where the lowest heat was used for the last 20 min. of the 25 min. cooking time.

TABLE 1

Moisture and thiamin content of 7 widely used cereals before cooking

TYPE OF CEREAL	MOISTURE	THIAMIN
	%	*mg./100 gm.*
1. Enriched farina	9.81	0.62
2. Enriched farina	9.68	0.32
3. Rolled oats	8.23	0.66
4. Mixed cereal	7.56	0.35
5. Whole wheat	9.02	0.43
6. Enriched farina	9.50	0.56
7. Whole wheat	8.61	0.63

Identical measuring cups, spoons, and pans were used in each of the tests.

The specific procedure for the cooking is given in Table 2.

After cooking, the samples were immediately carried to the laboratory in the original cooking utensil, spread on glass plates and dried at room temperature in a current of air from an electric fan. After drying, the samples were finely ground for assay.

[1]Received for publication April 15, 1946.

TABLE 2

Cooking procedures

TYPE OF CEREAL	AMOUNT OF CEREAL	AMOUNT OF WATER	AMOUNT OF SALT	COOKING TIME*
	cups	*cups*	*tsp.*	*min.*
1. Enriched farina	1	2⅔	1	2½
2. Enriched farina	1	2⅔	1	2½
3. Rolled oats	1½	3	1	8
4. Mixed cereal	1	4		10
5. Whole wheat	1	4	¾	5
6. Enriched farina	1	6	½	5
7. Whole wheat	1	3	1	25

* Counted after all the cereal had been added to the water.

TABLE 3

Thiamin content of raw and cooked cereals on basis of dry weight

TYPE OF CEREAL	THIAMIN CONTENT OF RAW CEREAL	THIAMIN CONTENT OF COOKED CEREAL	THIAMIN DESTROYED IN COOKING	COOKING TIME	pH OF COOKED CEREAL
	mg./100 gm.	*mg./per 100 gm.*	*%*	*min.*	
1. Enriched farina	0.69	0.63	8.7	2½	6.01
2. Enriched farina	0.35	0.30	14.3	2½	6.00
3. Rolled oats	0.72	0.64	11.1	8	6.10
4. Mixed cereal	0.38	0.37	2.6	10	5.94
5. Whole wheat	0.47	0.43	8.5	5	6.20
6. Enriched farina	0.62	0.41	33.9	5	6.90
7. Whole wheat	0.69	0.58	15.9	25	6.01

The yeast fermentation method of Schultz, Atkin, and Frey (6) was used for the thiamin determinations.

RESULTS

The results of the thiamin assays on both the raw and cooked cereals have been expressed on the basis of dry weight. For this reason, the differences in moisture content have been eliminated. The results are given in Table 3, including the percentage loss of thiamin. According to these results, there has been a loss of thiamin in all cases though small in some.

SUMMARY

The destruction of thiamin during the cooking of seven hot breakfast cereals, as prepared in the home, has been determined.

The loss in thiamin ranged from 2.6 to 33.9 per cent.

The *p*H values of the cooked cereals ranged from 5.94 to 6.90.

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MALNUTRITION PRESENT IN GREEK CHILDREN

A recent report from UNRRA Greek Mission indicates that a large percentage of all 6 to 14 year old children in Greece show physical evidence of dietary deficiency. It is said that graphs of the height of the children examined show a pronounced diminution in height compared to 50,000 children measured in Attica-Boetica in 1942. A decrease in the average height in children is one of the most reliable indications of chronic malnutrition, as loss of weight which fluctuates easily, is not too accurate a means of measuring the effects of poor diet.

Throughout Greece the picture is much the same. In the regions where the Swiss Red Cross provided supplementary feeding for the younger children during the war and occupation, the height is almost normal compared to that of children of Athens three years ago. The older children, between 10 and 16 years old, who were not eligible for the supplementary feeding, have been retarded. In the mountain area where the Germans did not permit the Red Cross to operate, all groups of children are stunted in growth.—*UNRRA News, J.A. M.A. 131: 446, 1946.*

The Vitamin Content of Canned and Cooked Fresh Mushrooms[1]

ANGELA M. FILIOS and WILLIAM B. ESSELEN, JR.

Food Technology Department, Massachusetts State College, Amherst Massachusetts

THIS investigation was carried out in order to obtain information on the stability and retention of riboflavin, nicotinic acid, pantothenic acid, and biotin in canned mushrooms (*Agaricus campestris*). For purposes of comparison, the effect of various cooking procedures on the vitamin content of the fresh product was studied. Fresh mushrooms have previously been found to be a good source of the vitamin B complex by Anderson and Fellers (1) of this laboratory.

The present investigation was carried out in three parts as follows:

(a) An analysis was made of three types of mushrooms canned by six different packers, in order to obtain a general picture of the vitamin B complex content of these products as they are available to consumers.

(b) The preparation of canned mushrooms was studied also in the laboratory in order to determine the effect of the canning process itself and storage on the stability of the vitamin B complex.

(c) A study was made of the effect of various cooking methods on the stability of the vitamin B complex in fresh mushrooms.

REVIEW OF LITERATURE

Work has been done on various foods in order to determine the effect of canning on the retention of vitamins. Christensen (2) studied the influence of cooking and canning on meat and reported no destruction of vitamin G.

Grzhivo and Kondrashova (3) studied the changes in riboflavin content during the canning of vegetables and reported losses ranging from 0 to 35 per cent on canning and storage, depending on the vegetable tested. Fellers, Esselen, and Fitzgerald (4) found the following losses of riboflavin in vegetables due to canning: peas, no loss; asparagus, 2 per cent; Lima beans, 30 per cent; and spinach, 50 per cent. Farrell and Fellers (5) found a very slight loss of riboflavin due to canning green snap beans.

Waisman, Henderson, McIntire, and Elvehjem (6) reported the losses of pantothenic acid due to cooking and commercial processing of meats as ranging from very slight to 66 per cent.

Rice and Robinson (7) reported a retention of 90 to 100 per cent of riboflavin and nicotinic acid in canned pork or beef, with little or no additional loss during storage for 219 days. Retention of pantothenic acid was 70 to 80 per cent, without further change during storage for 219 days.

EXPERIMENTAL PROCEDURE

Preparation of samples. Fresh and blanched mushrooms were treated with as little delay as possible. Representative samples (approximately 1 lb.) were ground in a food chopper and then in a Waring Blendor before being extracted for the vitamin determinations.

In the case of canned mushrooms, the contents of at least six cans were taken for each sample. The vacuum of each container was measured before it was opened. The contents were allowed to drain for 2 min. on an 8-in. sieve ($\frac{1}{8}$-in. mesh) and the drained weights of both solid and liquid portions were recorded. The solid portions were ground in a food chopper and in a Waring Blendor.

In order to calculate the vitamin value of the total contents of a container of canned mushrooms, the drained solids and the liquid portions were separated and weighed as described above. The

[1]Contribution No. 577, Massachusetts Agricultural Experiment Station, Amherst, Massachusetts. Received for publication November 30, 1945.

vitamin content per gram of solids and per milliliter of liquid was determined. The total vitamin value of each portion and of the total can contents could then be determined.

A toluene distillation method (8) was used to determine the moisture content of all samples of solids—fresh, blanched, cooked, and canned.

Vitamin determinations. The vitamin determinations were carried out by the microbiological method of Landy and Dicken (9). This method is based upon the growth of *Lactobacillus casei* to which the vitamins assayed are essential growth factors under specific conditions. In this study all determinations were made by measuring the amount of growth as indicated by lactic acid production when titrated with 0.1 N sodium hydroxide at the end of 72 hr. incubation at 37°C. (98.6°F.). Each sample was set up at five levels of 1, 2, 3, 4, and 5 ml. of test suspension per tube.

The reliability of the Landy and Dicken microbiological assay method is sometimes questioned, particularly in the case of certain foods. In order to determine the reliability of this method for the assay of mushrooms, many of the samples were assayed by both the above method and other recent methods.

Riboflavin was determined by the microbiological method of Snell and Strong (10), and also by the fluorometric method of Hodson and Norris (11), (Guggenheim [12]). Nicotinic acid determinations were compared with the Krehl, Strong, and Elvehjem (13) modification of the microbiological method of Snell and Wright (14). The method of Neal and Strong (15) was used as a comparative procedure in the case of calcium pantothenate.

Occasional samples showed a variation as great as 20 to 30 per cent between assay methods, but in general the comparative methods agreed within 10 per cent. In the case of riboflavin higher results were obtained with the microbiological method than by the fluorometric method. Those obtained by the Landy and Dicken method averaged 6 per cent lower than the results with the Snell and Strong (10) procedure. With nicotinic acid the Krehl, Strong, and Elvehjem (13) method tended to give higher results than the Landy and Dicken method (9). The Landy and Dicken method (9) also gave slightly lower results than the Neal and Strong method (15) in the case of calcium pantothenate.

Methods of vitamin extraction. In determining the vitamin content of foods, the extraction or liberation of the vitamins from the food itself presents a problem in many cases. In this investigation on mushrooms, both acid and enzyme extraction methods were carried out and compared. For acid extraction, the procedure recommended by Krehl, Strong, and Elvehjem (13) was adopted. Cheldelin, Eppright, Snell, and Guirard (16) studied the enzyme treatment of samples and recommended a procedure for the simultaneous release of all the B complex vitamins to be assayed by microbiological methods. Essentially the same procedure was used in this study except that clarase was used instead of takadiastase.

The enzyme materials themselves were assayed and blank determinations made, using the amounts of clarase and papain ordinarily used in the enzyme extractions and dilutions, in order to correct the final results for the vitamin content of the enzymes used.

TABLE 1

Retention of riboflavin, nicotinic acid, pantothenic acid, and biotin in canned mushrooms during canning and storage*

VITAMINS	STORAGE TIME OF MUSHROOMS	LOT I		LOT II	
		Vitamin content**	Percentage retention†	Vitamin content**	Percentage retention†
	months	*mg./100 gm.*		*mg./100 gm.*	
Riboflavin	(fresh)	0.342‡	100.0	0.355‡	100.0
Riboflavin	(blanched)	0.373‡	109.0	0.311‡	87.6
Riboflavin	0	0.324	94.7	0.313	88.2
Riboflavin	2	0.316	92.4	0.279	78.6
Riboflavin	6	0.240	70.2		
Riboflavin	12	0.225	66.0		
Nicotinic acid	(fresh)	3.06‡	100.0	4.25‡	100.0
Nicotinic acid	(blanched)	2.79‡	91.2	2.77‡	65.2
Nicotinic acid	0	2.08	68.0	3.24	76.2
Nicotinic acid	2	2.96	96.7	3.58	84.2
Nicotinic acid	6	2.48	81.0		
Nicotinic acid	12	2.11	69.0		
Calcium pantothenate	(fresh)	1.24‡	100.0	2.19‡	100.0
Calcium pantothenate	(blanched)	0.99‡	80.0	1.39‡	63.5
Calcium pantothenate	0	0.58	46.8	1.43	65.3
Calcium pantothenate	2	1.06	85.5	1.51	69.0
Calcium pantothenate	6	0.87	70.1		
Calcium pantothenate	12	0.75	60.5		
Biotin	(fresh)			0.0061‡	100.0
Biotin	(blanched)			0.0068‡	111.0
Biotin	0			0.0050	82.0
Biotln	2	0.0034		0.0068	111.0
Biotin	6	0.0048			
Biotin	12	0.0048			

* Reported as calcium pantothenate.

** Based on total can contents.

† Referred to fresh mushrooms.

‡ Vitamin content calculated on weight of mushrooms in each can.

The enzyme extraction method proved very satisfactory, as the results obtained were more uniform and in better agreement. Vitamin values for mushrooms therefore are reported from the data obtained by enzyme extraction methods.

RESULTS

Stability of B vitamins in mushrooms during canning and storage. Fresh mushrooms (*Agaricus campestris*) were obtained from a nearby mushroom grower and an experimental pack was prepared in the laboratory. The mushrooms were washed and trimmed, blanched for 7 min. in boiling water, packed into No. 2 plain tin cans (307 by 409) with a standardized fill in weight, and brined with a solution prepared by dissolving 54 gm. of citric acid and 135 gm. of salt in 3 gal. of water. The cans were processed in a retort for 25 min. at 116°C. (240°F.). Samples of the raw mushrooms, blanched mushrooms, and mushrooms immediately after processing were taken to determine the vitamin losses due to blanching and processing. The processed cans were stored at a room temperature of approximately 23.9°C. (76°F.), and samples were taken for analysis at intervals of 2, 6, and 12 months. The changes in the riboflavin, nicotinic acid, pantothenic acid, and biotin content of the mushrooms during canning and storage are shown in Table 1.

In order to check the validity of the figures obtained for changes during processing and storage, a second series of tests was run on a smaller set of samples. These results are also shown in Table 1. In general, the same trends are in evidence.

There was a slight loss of riboflavin, nicotinic acid, and pantothenic acid during blanching but little or no loss occurred during the sterilization process. During storage for 12 months a further loss of these vitamins was observed. Biotin was stable during the canning and storage of canned mushrooms.

Variations in the B vitamins in commercially canned mushrooms. Samples of canned mushrooms were obtained from six different commercial canners. Each canner supplied samples of (a) button mushrooms, (b) sliced mushrooms, and (c) stems and pieces, all packed in cans of 5.5 oz. net weight capacity. The canned mushrooms were analyzed three to six months after they were canned.

For each vitamin determination a composite sample from six cans was taken and was treated as discussed previously.

Table 2 shows the range of vitamin content per 100 gm. of can contents as follows: riboflavin, 0.16 to 0.352 mg.; nicotinic acid, 0.98 to 25.3 mg.; calcium pantothenate, 0.312 to 1.258 mg.; and biotin 3.33 to 9.97 mcg. Canned mushrooms, therefore, are excellent sources of riboflavin, nicotinic acid, calcium pantothenate, and biotin.

Canned button and sliced mushrooms were a better source of the vitamin B complex than canned mushroom stems and pieces. It is possible that

TABLE 2

The riboflavin, nicotinic acid, calcium pantothenate, and biotin content of commercially canned mushrooms

SAMPLE NUMBER	TYPE OF MUSHROOMS	RIBOFLAVIN	NICOTINIC ACID	CALCIUM PANTOTHENATE	BIOTIN
		*mg./100 gm.**	*mg./100 gm.**	*mg./100 gm.**	*mcg./100 gm.**
1	Buttons	0.229	1.84	0.917	6.65
4	Buttons	0.334	2.61	1.042	5.77
7	Buttons	0.352	2.09	0.827	7.02
10	Buttons	0.256	1.50	0.867	4.26
13	Buttons	0.183	2.08	1.179	6.15
16	Buttons	0.318	2.16	1.258	8.51
Average		0.278	2.04	1.015	6.39
2	Sliced	0.263	1.96	0.914	4.09
5	Sliced	0.313	2.53	1.0	6.79
8	Sliced	0.279	1.63	0.853	7.67
11	Sliced	0.231	1.97	0.913	8.56
14	Sliced	0.191	1.56	0.877	7.05
17	Sliced	0.319	2.22	1.126	9.97
Average		0.266	1.98	0.947	7.35
3	Stems and pieces	0.227	1.69	0.697	3.33
6	Stems and pieces	0.221	1.79	0.506	4.58
9	Stems and pieces	0.213	1.0	0.45	7.64
12	Stems and pieces	0.21	1.57	0.716	7.66
15	Stems and pieces	0.16	0.98	0.312	6.3
18	Stems and pieces	0.181	1.3	0.51	6.24
Average		0.202	1.39	0.532	5.96

* Total can contents.

TABLE 3

Changes in weight and moisture content of mushrooms during cooking

TREATMENT OF MUSHROOMS	WEIGHT BEFORE COOKING	WEIGHT AFTER COOKING	COOKING LIQUOR	MOISTURE
	gm.	*gm.*	*ml.*	%
Lot I				
Fresh	454			87.7
Boiled whole*	454	399.3	788	87.7
Boiled sliced*	454	349.5	760	89.9
Broiled whole	454	354.1	0	84.8
Sautéed	454	272.7	0	75.9
Lot II				
Fresh	454			89.1
Boiled whole*	454	314.4	750	87.4
Boiled sliced*	454	312.9	730	88.7
Broiled whole	454	254.6	35	83.7
Broiled sliced	454	225.1	40	81.0
Sautéed	454	215	0	75.1

* Cooked in 1 qt. (946 ml.) of water.

the lower vitamin content of the latter may be caused by a leaching of the vitamin from the product before it goes into the can. It is interesting to note that the vitamin content of commercially canned mushrooms obtained from different canners appeared to be more uniform than the vitamin content of many other kinds of canned foods (17, 18). This can undoubtedly be attributed to the uniform cultural conditions employed in raising mushrooms.

Thompson, Cunningham, and Snell (17) found that the riboflavin content of commercially canned fruits ranged from 0.018 to 0.096 mg. per 100 gm. For fish, the values ranged from 0.031 to 0.2 mg. per 100 gm. The same workers published the following values for calcium pantothenate content of canned foods: fruits and vegetables, 0.022 to 0.25 mg. per 100 gm.; fish, 0.17 to 0.57 mg. per 100 gm.

Ives, Wagner, Elvehjem, and Strong (18) found the following values for nicotinic acid in canned foods: fruits and vegetables, 0.13 to 1.06 mg. per 100 gm., and fish, 2.23 to 10.20 mg. per 100 gm.

Effect of cooking methods on vitamin B complex content of mushrooms. Fresh mushrooms were cooked by several methods and the retention of the riboflavin, nicotinic acid, calcium pantothenate, and biotin was determined. The mushrooms were washed and weighed into 1-lb. samples, and cooked by the following methods:

(a) Whole mushrooms were boiled in 1 qt. of water for 10 min.
(b) Mushrooms were sliced into ¼-in. slices and boiled for 10 min. in 1 qt. of water.
(c) Whole mushrooms were set on a broiling pan and broiled for 10 min. The mushrooms were turned once during the broiling period.
(d) Sliced mushrooms were broiled as in (c).

TABLE 4

Effect of cooking methods on the riboflavin, nicotinic acid, calcium pantothenate, and biotin content of fresh mushrooms

METHOD OF COOKING	WEIGHT	RIBOFLAVIN			NICOTINIC ACID			CALCIUM PANTOTHENATE			BIOTIN		
		Per 100 gm. portion	Total	Percentage retention	Per 100 gm. portion	Total	Percentage retention	Per 100 gm. portion	Total	Percentage retention	Per 100 gm. portion	Total	Percentage retention
	gm.	*mg.*	*mg.*	*%*	*mg.*	*mg.*	*%*	*mg.*	*mg.*	*%*	*mg.*	*mg.*	*%*
Lot I													
Fresh	454	0.59	2.679	100	5.6	25.424	100	2.7	12.258	100	0.018	0.0817	100
Boiled whole:													
solids	399.3	0.452	1.805		4.0	15.972		2.2	8.785		0.0094	0.0375	
liquid	788	0.136	1.072	107	0.88	6.934	91.5	0.37	2.916	95.4	0.00058	0.0046	51.5
Boiled sliced:													
solids	349.5	0.343	1.199		2.86	9.995		1.56	5.452		0.0079	0.0276	
liquid	760	0.137	1.042	83.6	1.42	10.792	81.9	0.69	5.244	87.2	0.0012	0.0091	44.8
Broiled	354.1	0.725	2.568	95.8	6.4	22.662	89.2	3.3	11.685	95.2	0.0104	0.0368	45
Sautéed	272.7	0.954	2.594	96.8	6.7	18.271	71.8	3.5	9.544	77.8	0.0099	0.0270	33
Lot II													
Fresh	454	0.544	2.469	100	5.1	23.154	100	2.45	11.123	100	0.0117	0.0531	100
Boiled whole:													
solids	314.4	0.536	1.685		4.4	13.834		2.2	6.917		0.012	0.0377	
liquid	750	0.118	0.885	104	0.87	6.525	87.8	0.57	4.275	106.2	0.00022	0.00165	74.1
Boiled sliced:													
solids	312.9	0.271	0.848		3.1	9.700		1.32	4.130		0.0055	0.0172	
liquid	730	0.173	1.263	85.6	1.8	13.140	98.7	0.83	6.059	91.6	0.00053	0.0039	39.7
Broiled whole:													
solids	254.6	0.663	1.688	83.2	7.0	17.822	91.2	2.8	7.129	77.6	0.0128	0.0326	66
liquid	35	1.049	0.367		9.4	3.290		4.3	1.505		0.007	0.00245	
Broiled sliced:													
solids	225.1	0.603	1.358		8.0	18.008		3.1	6.978		0.0092	0.0207	
liquid	40	0.67	0.268	65.8	7.8	3.120	91.3	3.3	1.320	74.6	0.0038	0.0015	41.8
Sautéed	215	1.054	2.264	91.8	9.0	19.350	83.5	3.9	8.385	75.4	0.0132	0.0284	53.5

(e) Mushrooms were sliced and sautéed in a frying pan for 10 min., with occasional turning of the mushrooms. A small amount of cooking oil was used in the pan.

The weights of the samples before and after cooking and their respective moisture contents are shown in Table 3. It may be seen that of the cooking methods employed, broiling and sautéeing caused a marked loss of moisture.

The vitamin content of the cooking liquor, as well as that of the cooked solids, was determined in order to calculate the total vitamin retention.

The experimental results are summarized in Table 4. There was little loss of riboflavin due to cooking procedures in most cases. However, the broiled sliced mushrooms suffered most, retaining but 65.8 per cent of the riboflavin. The other samples ranged from 83.2 to 107 per cent retention of riboflavin.

The values obtained for nicotinic acid losses were in approximately the same range as riboflavin. Nicotinic acid retention values were 71.8 to 98.7 per cent during cooking. The percentage retention of calcium pantothenate ranged from 74.6 to 106.2 per cent. The biotin values obtained were somewhat lower. After cooking, the biotin retention in mushrooms ranged from 33 to 74.1 per cent.

Efficiency of enzyme extraction methods. In order to determine the adequacy of the enzyme extraction methods on the samples of raw mushrooms, it was decided to try a preliminary autoclaving of the weighed fresh sample in 0.1 N acid, followed by the routine enzyme treatment, to see if the vitamin values would be different from those obtained by simple enzyme treatment. In the case of riboflavin, the enzyme treatment alone had given very low values for fresh mushrooms. The preliminary autoclaving in weak acid brought the figures up to the range obtained for cooked mushrooms, indicating that the vitamin was made available to the test organism by the combined acid-enzyme extraction method. For nicotinic acid and biotin, the acid-enzyme extraction did not seem to alter the vitamin values obtained for fresh mushrooms. In this study, the riboflavin values recorded for fresh mushrooms are those obtained by acid-enzyme treatment or extraction. In all other cases, the simple enzyme extraction values are recorded.

The results indicate the importance of adequate extraction procedures in the microbiological determination of vitamins. Although the riboflavin in blanched and processed mushrooms was evidently soluble or available to the test organism, the raw samples apparently required additional preliminary treatment to effect availability of the riboflavin in the assay procedure.

The adequacy of any of the present extraction procedures for microbiological determinations may be questioned. This applies especially to the biotin values obtained in this study. It is believed that these values are liable to unknown error, probably because of erratic availability of the biotin by the extraction procedures employed.

SUMMARY AND CONCLUSION

Canned mushrooms were found to be excellent sources of riboflavin, nicotinic acid, pantothenic acid, and biotin. The content of these vitamins was quite uniform in commercially canned mushrooms from different sources. In canning there was a slight loss of riboflavin, nicotinic acid, and pantothenic acid during blanching with little or no loss occurring during the sterilization process. During storage for 12 months a further loss of these vitamins in the canned product was observed. However, biotin appeared to be relatively stable during the canning and storage of canned mushrooms.

Riboflavin, nicotinic acid, pantothenic acid, and biotin were well retained when fresh mushrooms were cooked by various methods.

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World Food Consumption Statistics to Be Gathered

At an informal meeting in London in May, the Food and Agricultural Organization of the United Nations took the first step in organizing the FAO's long-term statistical service. As part of this service, food consumption statistics will be gathered regularly from over the world. The subcommittee concerned with this work made the following detailed suggestions on ways and means by which these figures could be obtained. They are:

(a) All countries with reasonably developed statistical services should be asked to furnish FAO each year with food balance sheets showing estimated supplies of all foodstuffs moving into human consumption, including estimates for the past year and forecasts for the coming year.

(b) FAO should set up a small panel of experts to advise on the statistical methods to be followed in these returns.

(c) In the case of countries with undeveloped statistical services, consumer survey studies should be used instead of food balance sheets, and the governments of these countries should be given every encouragement by FAO to undertake such surveys as soon as possible.

(d) To ensure comparability between countries, FAO should set up a small advisory panel to recommend methods to be followed in consumer surveys, particularly sampling methods. Since the surveys would provide material on consumption by different income and other groups, and on family budgets, the panel should include an expert on social statistics who would work in cooperation with other United Nations organizations concerned. FAO should be in a position to assist less developed countries undertaking consumer surveys by loaning expert advisers.

(e) FAO should set up a small panel of nutrition experts and food statisticians to advise on the preparation of tables of food composition for use with data obtained from food balance sheets and consumer surveys. The final objective would be to compile a table, which would be accepted in all countries, giving analyses on a comparable basis for all the world's main foodstuffs.

(f) The question of nutrient requirements by age, sex, weight, physical activity, and other groupings should be referred to the United Nations Health Organization.

(g) Estimates of food consumption in the years immediately before the war should be agreed upon and published for as many countries as possible to provide a historical base for future studies. This might be done conveniently by agreement with statisticians of the countries concerned on the provisional estimates already prepared for this period by FAO.

(h) Provision should be made to coordinate the word of the three specialist panels, on balance sheets, consumer survey methods, and food composition.

(i) Emphasis was laid on the special value of food processing statistics, particularly statistics of flour milling, for consumption estimates.—*From FAO Information Service Bulletin, No. 3 (June, 17) 1946.*

Editorial

THE CINCINNATI MEETING

October 14–18

The 29th Annual Meeting of the American Dietetic Association—to be held at the Netherland Plaza, overlooking the Ohio River into Kentucky—promises to be one of the largest, most colorful and stimulating in the history of the Association.

The innovations resulting from the wartime emergency will be apparent in the addresses on diet therapy, administration, community nutrition, and teaching. A brief preview of the general program shows such themes as: Global Nutrition, Newer Advances in Nutrition, Kitchen Layouts, Organization and Management, Maternal and Child Health, Evaluation of Teaching Dietetics to Student Nurses, Personnel Relations, Nutrition Appraisal, Food Technology Trends, and School Lunchroom Problems. Outstanding names among the speakers will be Dr. Paul R. Hawley, Chief Medical Director of the Veterans Administration; Dr. Frank Tallman, Commissioner of Mental Hygiene for the State of Ohio; Dr. Josef Warkany and Dr. George M. Guest of Children's Hospital Research Foundation, Cincinnati; Dr. Jerome Conn of the University of Michigan Hospital; Dr. William Darby and Dr. John Youmans of Vanderbilt University; Dr. C. A. Elvehjem of the University of Wisconsin. Charles P. Taft, prominent Cincinnati lawyer, will be the speaker at the Welcoming Luncheon. The tentative program for the meeting appears on pages 792, 794, and 796.

A number of entertaining and instructive trips are being planned, including a tour of the Calumet and other famous stables, with lunch in Kentucky. There will be a two-hour sight-seeing trip of Cincinnati which will pass Music Hall, University of Cincinnati, Xavier University, Children's, General, and Good Samaritan Hospitals, several residential districts, the Zoo, Lunken Airport, parks overlooking the Ohio River, Art Museum, Rookwood Pottery, and the Taft Museum, the former home of William Howard Taft. Local trips will also be made through the Kroger Food Foundation; Procter and Gamble; WLW Radio Studios; Rookwood Pottery; the Art Museum; the Taft Museum, which contains the private collection of fine objects of art and paintings of the Tafts; and the various hospitals. Also scheduled is an airplane trip over the city and northern Kentucky during which the pilot will explain what the passengers are seeing.

Matters formerly taken up at the business meetings will be transacted this year at the House of Delegates meeting. Although only the delegates, the national officers, and the section chairmen are permitted to vote, all members are urged to attend this meeting to audit the proceedings of the House of Delegates as it functions under the new constitution, adopted October 26, 1944.

Members of the Association attending the convention will be guests of the Cincinnati and Ohio Dietetic Associations at a reception in the Pavillon Caprice at the Netherland Plaza on Monday evening. Reunion luncheons on Thursday and Friday, the Buffet Supper honoring exhibitors on Thursday, and the Annual Banquet on Friday evening will provide entertainment and gustatory satisfactions.

As the JOURNAL goes to press, there are still some rooms available, not at the Netherland Plaza, but at nearby hotels. Since a large attendance is expected and the room situation is critical, members are urged to make reservations at once. Plan to share a room with a friend. The Netherland Plaza will refer your request to one of the nearby hotels—all within the distance of a block from convention headquarters.

FOOD: A JOINT INTEREST

Food has long been recognized as an almost universal concern of women. Dietitians and nutritionists have given this interest the scientific study, the devotion, and critical attention necessary to dignify the practice of dietetics as a profession. Because of our fundamental interest and our intensive training we tend to regard ourselves as the only group with a professional attitude toward food and food habits.

We have traditionally allied ourselves with the medical groups, perhaps because the need for specialists in food was given early recognition by the administrative personnel of hospitals who regarded appetizing and nourishing food as a basic treatment of disease. The importance of adequate nutrition

as a preventive and protective factor in health was recognized and accepted later, but the concept has received growing application through educational agencies.

Other professional groups also have an interest in food which goes beyond the need of each individual member to satisfy hunger pangs regularly. Often these groups are allied only by an interest in human beings, although the particular phases of interest may be quite different. Food at the moment is of major importance in world politics; anthropologists have studied food habits along with other aspects of the culture of specific groups; psychologists have studied the food habits of both man and animals to obtain further knowledge of their behaviour; child development specialists have been occupied with the effort to reconcile physiological needs and acquired attitudes toward food.

The bibliography of the *Manual for the Study of Food Habits*[1] illustrates pointedly this interest of other professional groups. Articles from more than 60 journals are listed, only about one third of which are of a medical nature. The other publications represent for the most part the fields of psychology, psychiatry, anthropology, sociology, education, and human development.

The dietitian or nutritionist who is interested in the point of view of these other groups can well wonder how in a busy day she can become aware of the sometimes widely varying contributions to a field she considers particularly her own. The Committee on Emotions and Diet Therapy, of the American Dietetic Association, with the assistance of various members of the Chicago Council of Clinic Nutritionists, hopes to meet at least partially this need. Current issues of journals mentioned in the bibliography cited and not previously reviewed for the JOURNAL are being scanned and pertinent articles abstracted. We may not always agree with the conclusions presented, but if the project serves to keep our profession aware of those conclusions, the Committee will have accomplished one of its aims.—*Helen Brecht, chairman, Committee on Emotions and Diet Therapy*

ADMINISTRATIVE ADVISER

The Association is pleased to announce the appointment of Bertha Biltz as administrative adviser beginning September 15. Miss Biltz' appointment represents the culmination of the Association's long-standing plans to expand its service by making available to members a consultant eminently qualified to advise on administrative problems, such as kitchen planning, equipment purchases, personnel and training problems, and so on. Much of Miss Biltz' time will be spent in the field so that she may know the problems of the members and be able to help individuals and groups in finding desirable solutions to their administrative problems. Miss Biltz comes to us with a broad experience both in administrative and hospital dietetics.

A graduate of Kansas State College, with a degree of Master of Science from the University of Chicago, Miss Biltz obtained her professional dietetic training at Michael Reese Hospital, Chicago. She has served as therapeutic dietitian at Saint Marys Hospital, Rochester, Minnesota, and as dietitian at the State Hospital, Rochester. For seven years she acted as teaching dietitian with some administrative duties at Presbyterian Hospital, Columbia Medical Center, New York City.

For the past five years, Miss Biltz has been director of dietetics, Saint Luke's Hospital, Cleveland, where she did an outstanding job of reorganizing the Dietary Department, despite wartime difficulties in obtaining foods and personnel. She has also been responsible for the inauguration and development of the A. D. A. approved course for student dietitians at Saint Luke's Hospital.

Miss Biltz has been an A. D. A. member since 1926 and has been active in local dietetic associations, having served as president of the Ohio Dietetic Association and vice-president of the Cleveland Association. For the last four years she has also been a member of the A. D. A. Hospital Approval Committee, and from 1943–1945 was chairman of one of the Food Administration Section projects.

THE JOURNAL STAFF

Announcement is also made of the appointment of Harriet E. Sankey as managing editor of the JOURNAL. Miss Sankey is a graduate of Western College, Oxford, Ohio. She has served as desk editor of *American Business*, monthly management magazine published by Dartnell Corporation, and as associate editor of Science Research Associates, publishers of occupational information material used in school guidance work. While with Science Research Associates she edited the *American Job Series* of pamphlets on occupations and later prepared *Occupational Briefs*, a series of research studies on occupational opportunities in various fields. During the war, she was in charge of the selection of pamphlets included in a booklet library on vocations used by the Army.

[1] MEAD, M. AND WOODWARD, P. Manual for the Study of Food Habits. Washington: National Research Council, 1945.

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Appointments, Army Medical Department Dietitians

The following Medical Department Dietitians were appointed during the month of July, 1946

Barefoot, Helen R.: Margaret Morrison College, Carnegie Institute of Technology; Brooke General Hospital
Blodgett, Mary E.: Texas State College for Women; Brooke General Hospital
Brennan, Dorothy A.: Syracuse University; Fitzsimons General Hospital
Hambleton, Martha R.: Oklahoma College for Women; Brooke General Hospital
McGary, Virginia E.: University of Wisconsin; Brooke General Hospital
Miller, Joyce M.: Stout Institute; Brooke General Hospital
Neacy, Mary A.: University of Wisconsin; Brooke General Hospital
Pope, Elizabeth: Alabama College; Brooke General Hospital

Promotions, Army Medical Department Dietitians

The following Medical Department Dietitians were promoted during the month of July, 1946. They are on duty in Army hospitals in this country and overseas.

First Lieutenant to Captain

Girard, Evelyn M., R-370

Second Lieutenant to First Lieutenant

Brice, Virginia N., R-2009
Gildea, Margaret M., R-2015
Howard, Betty G., R-2122
Murphy, Marjorie M., R-2247
Ouly, Angela B., R-2176
Schaeffer, Helen L., R-2232
Ward, Marguerite E., R-2186

Army Medical Department Dietitians Separated from the Service[1]

The following dietitians have been separated under the provisions of the Separation Policy established by the Surgeon General for Medical Department Dietitians.

Captains

Averill, Marie L., R-1270, Rib Lake, Wis.
Behlen, Mary K., R-8, 244 Brattle St., Cambridge, Mass.
Hawe, Ada P., R-209, 198 Main St., Binghamton, N. Y.
Rogers, Virginia L., R-353, Hamilton, Ala.

First Lieutenants

Anderson, Helene M., R-1364, Hanska, Minn.
Beatty, Lola S., R-178, 504 Elmhurst, San Antonio, Tex.
Brewer, Dorothy J., R-1348, Belgrade, Mont.
Churchill, Evelyn M., R-1083, 236 S. Winooski Ave., Burlington, Vt.
Claussen, Vera E., R-1285, Malone, Wis.
Hotaling, Norma J., R-1342, R.R. #1, Box 122, Sherwood, Ore.
Kendall, Alice E., R-772, 240-06 53rd Ave., Douglaston, N. Y.
Lecrone, Naomi, R-106, 515 10th St., Moundsville, W. Va.
Lescalleet, Harriet R., R-1422, Kennedy General Hospital, Memphis, Tenn.
Mendelsohn, Rita, R-1100, 702 Ashford St., Brooklyn, N. Y.
Meyer, Vivian G., R-2111, 1914 W. Main St., Merrill, Wis.
Nylen, Wilda M., R-213, 1612 Crenshaw St., Los Angeles, Calif.
Tolman, Marion E., R-1345, Hardwick Road, Gilbertville, Mass.
Ulrich, Virginia L., R-2187, 1619 Delaware St., Berkeley, Calif.
Walsh, Teresa M., R-1269, 3824 Eliot Rd., Erie, Pa.
Wark, Jane M., R-1216, 198 Albertris Ave., Toronto, Ont., Can.
Wassenaar, Joan D., R-483, 35 E. 15th St., Holland, Mich.
Wood, Edith E., R-2007, Chagrin Falls, Ohio

Second Lieutenants

Bradford, Margie A., R-2317, Luther, Mich.
Casey, Mary C., R-2242, Somersworth, N. H.
Davis, Doris V., R-2408, Shipshewana, Ind.
Dunlap, Frances E., R-2463, 624 Redondo Ave., Salt Lake City, Utah
Flynn, Ruth M., R-1363, 1205 E. 86th St., Cleveland, Ohio
Ginn, Bow M., R-2261, 723 Jackson St., Oakland, Calif.
Hayes, Jane B., R-2376, 303 Lookout Ave., Dayton, Ohio
Hoskins, Mary S., R-1388, 1130 S. Higgins Ave., Missoula, Mont.
Kerkes, Ruth M., R-2053, Wakefield, Mich.
Prince, Lawnzina, R-2443, 580 E. Browning, Chicago, Ill.
Rathert, Ruth E., R-2194, Red Bud, Ill.
Reser, Alerita J., R-1419, Condon, Ore.
Robinson, Barbara I., R-2268, Cambridge, Vt.
Smith, Willie E., R-1380, 420 S. Jones St., Drumright, Okla.
Totilas, Elizabeth R., R-2019, 18 Montrose St., Worcester, Mass.

[1] First Lieutenant Mary S. Lowe, R-250, who was reported separated in June, 1946, has been recalled to active duty.

In the July issue of the JOURNAL, Jane McCullough was incorrectly listed under separations as a 2nd Lt. Miss McCullough at the time of her separation held the rank of 1st Lt. Also, in the August issue, Louise A. K. Frolich was incorrectly listed as a 1st Lt. instead of a Capt.

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New Appointments, Veterans Administration

The following appointments of dietitians (not previously announced) have been made by the Veterans Administration

NAME	POSITION	LOCATION
Jeannette Crooks	Chief, Diet Therapy Division	Dietetic Service, Central Office, Washington, D. C.
Margaret C. Bernard	Chief, Dietetic Division, Branch No. 13	Denver, Colo.
	Hospital Appointments	
	Branch No. 1	
Gertrude McMasters	Staff Dietitian	Rutland Heights, Mass.
Ella Wakefield	Staff Dietitian	Bedford, Mass.
	Branch No. 2	
*Carl Dahlbeck	Staff Dietitian	Legion, Tex.
*Mary Ann Gentile	Staff Dietitian	Bronx, N. Y.
*Mary Ann McCue	Staff Dietitian	Bronx, N. Y.
Sara Ann Parker	Chief Dietitian	Canandaigua, N. Y.
	Branch No. 3	
Margaret Lowney	Chief Dietitian	Butler, Pa.
	Branch No. 4	
Catherine Aitcheson	Staff Dietitian	Fort Howard, Md.
Anne C. Donovan	Staff Dietitian	Washington, D. C.
Eunice Powers	Staff Dietitian	Richmond, Va.
	Branch No. 5	
Elma Benton	Head Dietitian	Kennedy, Memphis, Tenn.
Doris Bollenbach	Staff Dietitian	Kennedy, Memphis, Tenn.
Agnes Cassidy	Staff Dietitian	Kennedy, Memphis, Tenn.
Nina Corbett	Head Dietitian	Kennedy, Memphis, Tenn.
Sara Frances DeWees	Asst. Chief Dietitian	Kennedy, Memphis, Tenn.
Marian Fisher	Head Dietitian	Thomasville, Ga.
Edith Graham	Acting Chief Dietitian	Kennedy, Memphis, Tenn.
R. Alberta Hughes	Asst. Chief Dietitian	Kennedy, Memphis, Tenn.
Ruth Pontius	Chief Dietitian	Miami Beach, Fla.
Elizabeth Shamberger	Head Dietitian	Thomasville, Ga.
Janice Vickery	Staff Dietitian	Kennedy, Memphis, Tenn.
Harriet R. Wertz	Head Dietitian	Kennedy, Memphis, Tenn.
	Branch No. 7	
Marguerite Anacker	Asst. Chief Dietitian	Wood, Wis.
Maurine Cisne	Staff Dietitian	Dwight, Ill.
Dorothy A. Evans	Staff Dietitian	Indianapolis, Ind.
Margaret O. Farrant	Staff Dietitian	Downey, Ill.
Ruth Nesler	Staff Dietitian	Hines, Ill.
	Branch No. 8	
Virginia Bailey	Staff Dietitian	Minneapolis, Minn.
Mary E. Carey	Staff Dietitian	Lincoln, Neb.
Melvina Larson	Staff Dietitian	Minneapolis, Minn.
Virginia McConville	Staff Dietitian	Minneapolis, Minn.
May Morris	Staff Dietitian	Des Moines, Iowa
Helen Prusak	Staff Dietitian	Minneapolis, Minn.
	Branch No. 9	
Frances Gillespie	Staff Dietitian	Jefferson Barracks, Mo.
Ada Lovett	Chief Dietitian	Topeka, Kans.
Marguerite Rossman	Staff Dietitian	Jefferson Barracks, Mo.
Mary Elizabeth Stack	Head Dietitian	Fayetteville, Ark.
	Branch No. 11	
Carla F. Muller	Chief Dietitian	Portland, Ore.
Margaret Schoffman	Head Dietitian	Ft. Harrison, Mont.
Rubie Swavely	Staff Dietitian	Ft. Harrison, Mont.
	Branch No. 12	
Margaret Eck	Staff Dietitian	Los Angeles, Calif.
**Pauline Epstein	Staff Dietitian	Newington, Conn.
Olive Galloway	Staff Dietitian	Los Angeles, Calif.
Rebecca Koerting	Chief Dietitian	Whipple, Ariz.
Virginia Pollard	Staff Dietitian	Livermore, Calif.
Thelma Stinson	Staff Dietitian	Phoenix, Ariz.
**Mary M. Thomes	Staff Dietitian	Los Angeles, Calif.
**Lorraine Walker	Staff Dietitian	Oakland, Calif.
**Marjorie Wells	Staff Dietitian	Los Angeles, Calif.

* Recent graduates of VA Student Dietitian Course, Bronx, N. Y.

** Recent graduates of VA Student Dietitian Course, Los Angeles, Calif.

Current Comment

AIDS TO FOOD BUYING[1]

F. L. SOUTHERLAND

Chief, Processed Products Standardization and Inspection Division, U. S. Department of Agriculture

In these days of food shortages, when millions of people in other lands are hungry or on the verge of starvation, there can be no question about responsibility of those who plan our meals, whether the planning is done by the housewife or by those engaged in feeding large groups. Dietitians, responsible for both the purchasing of food and planning of meals, whether on a small or large scale, constitute an intricate link in our marketing system. Of no little importance to you is a comprehensive knowledge of food production, how and where it is produced, sources of supply, whether seasonal or available all year, means and cost of transportation, storage and shelf life of the products, a good knowledge of quality, and a common means of ranking and recognizing quality.

Since my work is directly connected with developing standards for grades of processed fruits and vegetable products and conducting an inspection service on these products, I shall discuss these standards and the inspection service.

As a result of the need for uniform standards for measuring important variations in the quality of processed fruits and vegetables and their products, whether canned, dried, or frozen, the U. S. Department of Agriculture has developed standards for grades for most of the more important of these products. To date 88 standards for grades of these products have been issued. These standards will be revised if and when the need for revision arises. Standards for additional commodities will be developed when the need for such standards is manifest.

According to these standards, quality generally falls into one of four primary classifications, in line with trade practice. The names used to designate the four primary classifications are: U. S. Grade A or U. S. Fancy; U. S. Grade B or U. S. Choice or Extra Standard; U. S. Grade C or U. S. Standard; and U. S. Grade D or substandard or off-grade.

The United States standards for grades of frozen peaches, which became effective June 30, 1945, and which were intended primarily for consumer dessert packs, have since been supplemented with grades of frozen peaches for manufacturing. These may be of great assistance to those buying frozen peaches for the bakery or for the manufacturers of jams, preserves, and ice creams. Buyers of bulk packs for institutional use may find quality that meets these grades suitable for other purposes as well.

The standards for grades of processed fruits and vegetables are developed in close cooperation with industrial and consumer groups. They describe the various important factors that affect the relative market desirability of the product. They cover inherent characteristics and reflect the workmanship of the preparation of the raw materials and the process of manufacture. Each grade in each standard is carefully described and in most, a point system is provided which indicates where the product ranks within a given grade.

With the exception of the standards for concentrated orange juice and concentrated grapefruit juice—which require a minimum ascorbic acid content—specific requirements for vitamins and minerals are not incorporated in the grades. We realize that it would be ideal if each grade specified minimum nutritional values, but this has not been done for three major reasons: first, it would not be practical to determine the nutritional values on each and every lot of processed fruits and vegetables as they are now handled. It would cost more to make these determinations on the various and sundry small lots than the product would be worth. Second, since it is generally known which fruits and vegetables possess relatively high amounts of various minerals and vitamins, a person may select foods to satisfy his minimum daily requirements of those nutrients, irrespective of the grade. And third, although nutritional components are essential for an adequate diet, these factors have not been lacking in processed fruits and vegetables to the extent of influencing trade practices.

As we extend our studies in the development of

[1] Presented at the New England Conference on Organization and Management at Boston, June 6, 1946.

standards and with further advancement in food technology, it may become practical to incorporate minimum dietary values in more of them.

The present standards permit wide latitude on the part of processor, seller, and buyer in dealing with such factors as size of container, style of product, sieve sizes, number of units per container, sirup densities, and type or variety of fruit and vegetable. These factors, as well as the grade, should be specified by the buyer when buying a product to serve a particular purpose.

To implement this grading system, the Department has made available to the food industry an inspection service. This service, like the U. S. standards for these products, is for voluntary use, and is designed to help processors improve the quality of their products, to aid in more efficient distribution, to assist in avoiding waste and confusion, and to facilitate selling and buying.

The inspection service is staffed by a group of well-trained men and women inspectors. Inspection offices are located in all major areas of production and in many of the large receiving markets.

Inspection is accomplished by selecting and examining samples from each lot offered for inspection. The samples are examined for the various factors that constitute the grade; also for factors such as type, style, sieve size, sirup density, and so on, in which the applicant for inspection is interested. A chemical or microanalysis is made on products that require such determinations. The results of the inspection are reported on an official document called a certificate, which the applicant may use in various ways. It may guide him in future packing operations. Attached to his sales invoice when shipping or selling the goods, it serves as evidence of quality of the product. It may also be used as evidence of quality for arriving at the loan value of the product.

There is another type of inspection service known as continuous inspection, which is extended to plants whose management agrees to maintain high standards of plant sanitation and to improve the quality of their products where possible and practical. The physical properties of the plant and plant equipment must be suitable for doing a good job before this type of service is granted. For this service a federal inspector is stationed continuously at the plant during packing operations to observe the preparation of the raw material, processing operations, plant cleanliness, and other similar factors. He also samples and examines the finished product and issues certificates to indicate quality. Processors who make use of this service are permitted to identify their products as having been packed under the continuous inspection of the U. S. Department of Agriculture.

Members of organizations responsible for formulating specifications in procuring supplies for their agencies may find Miscellaneous Publication No. 565 entitled *Outline of Suggested Specifications for Purchasing Processed Fruits and Vegetables* a great help. Also, those interested in more detail concerning government inspection of processed fruits and vegetables may find in Miscellaneous Publication No. 598, entitled *Questions and Answers on Government Inspection of Processed Fruits and Vegetables*, helpful information. Both publications may be obtained by writing to the Production and Marketing Administration, U. S. Department of Agriculture, Washington 25, D. C.

PERSONNEL RELATIONS IN HOSPITALS

PHILIP D. BONNET, M.D.[1]

The creation of the desired atmosphere in a hospital starts at the top, even with the Board of Managers. To this end, a personnel program exists in every hospital. It may be formal or informal, organized or not—even unconscious—but it does exist. Its purpose is to create a common effective purpose, and an *esprit de corps* so that the hospital ideal may be fulfilled.

Present day hospital personnel practices are an outgrowth of the original spirit of self-dedication. The provision of housing and meals was in the beginning sound, acceptable practice—really an outgrowth of domestic service. As industrialization has progressed, new problems peculiar to mass production industry have arisen and have seized the limelight, and the advantages of service-type of employment have been eclipsed. Hospitals have lagged somewhat in keeping up with social changes as far as their employees are concerned, but no more so, I think, than other organizations of comparable age. Hospitals now recognize that they have taken their employees too much for granted, and that there is need for improvement in this field of administration.

Every personnel program is an experiment in human relations—a subject in which it is very difficult to produce conscientiously any specific result when so many intangibles and variables are involved.

Each of us is a changing web of reason and emotion with varying degrees of self-discipline and self-control. It is necessary to know something of basic human needs and desires, since a blind or ignorant disregard for them is fatal. We know the primitive instincts of all animals, including man, to be self-preservation and reproduction of the species. In our society, imperfect and chaotic as it frequently seems to be, the primitive instincts have been transformed into socially acceptable forms, but in whatever form they exist, they must be recognized

[1] Presented at the meeting of the Pennsylvania Dietetic Association, May 3, 1946.

and satisfied. We know but often forget in the haste and stress of the day's work that we all need or desire certain things.

Dr. Richard Cabot put them in the simple form of a square—work, play, love, and worship. We must now examine our hospital and our departments to see how much we provide of some of these basic needs.

1. Do we protect the physical health of our employees? Do we help and encourage our employees to value and seek health?
2. Do we protect the mental health and stimulate the morale of our employees?
3. Do we recognize the importance of the family to an individual and make it possible for a married person to make a career of hospital work?
4. Do we provide any opportunity for creative work?
5. Is individuality permitted?
6. Is a person encouraged to feel that his work is worth while?
7. Is an honest attempt made to answer sympathetically questions which stem from honest curiosity?
8. Is credit freely and generously given when due?
9. Is the "sin condemned" and the sinner forgiven in private?
10. Is friendly association possible and encouraged?
11. Is remuneration consistent, fair, and comparable with self-respect and a sense of social approval? Is a silent penalty absent from each pay envelope?
12. Are employees' facilities, such as locker rooms, conducive to self-respect?
13. Is justice administered with a light hand?
14. Is self-control and self-reliance practiced and expected? Do they feel they are making progress? Have employees anything to hope for?
15. Is the realm of the spirit, the need of religion expressed, recognized, and encouraged in precept and practice?

What is done is not nearly as important, however, as is the manner, the tone of voice, and the spirit in which it is done.

If all of these questions can be answered affirmatively in a hospital or even a hospital department, though I know of no hospital which would reach 100 per cent, it matters not how the personnel program is organized or administered. The employees will say: "This is a good place to work." The details, the material considerations, the techniques employed are all experimental, tentative, relative, and changing. It is the philosophy behind the details which counts—its soundness and its visibility. Whatever form is adopted, hospitals must be concerned with the establishment, development, and maintenance of general policies *put in concrete form* toward the following:

1. Sources of employees.
2. Employment procedures including evaluation of qualifications and aptitudes.
3. The absorption and training of new employees and personnel.
4. Promotion or transfer.
5. Termination procedure.
6. Working hours.
7. Remuneration including security provisions.
8. Uniforms.
9. Vacations.
10. Holidays.
11. Leaves of absence.
12. Health service.
13. Special hazards.
14. Employment records.
15. Employee representation.

The details of policy must be decided in each individual situation. They must, however, bear a functioning relationship with the social context. We must adapt ourselves to new conditions. We must gird ourselves to provide effective training for all types of personnel, but we must now let science overcome our hearts.

To accomplish this, it has become necessary to establish personnel departments for the coordination of all personnel policies. The operating problems within each department are of sufficient magnitude and have become sufficiently technical to leave little time for detailed concern with personnel administration. The personnel department can only, however, provide the trellis or skeleton upon which to grow a comprehensive program. The personnel department can only deal with personnel administration. It cannot overcome weaknesses in basic organization. It cannot function unless authority and responsibility are in clear cut and harmonious balance. It cannot replace good manners. It cannot relieve department heads of responsibility within that department. The responsibility for personnel relations rests on each and every member of the organization.

The "Memo from the Boss" quoted below is well known.

A *patient* is the most important person in this hospital.

A *patient* is depending on us.

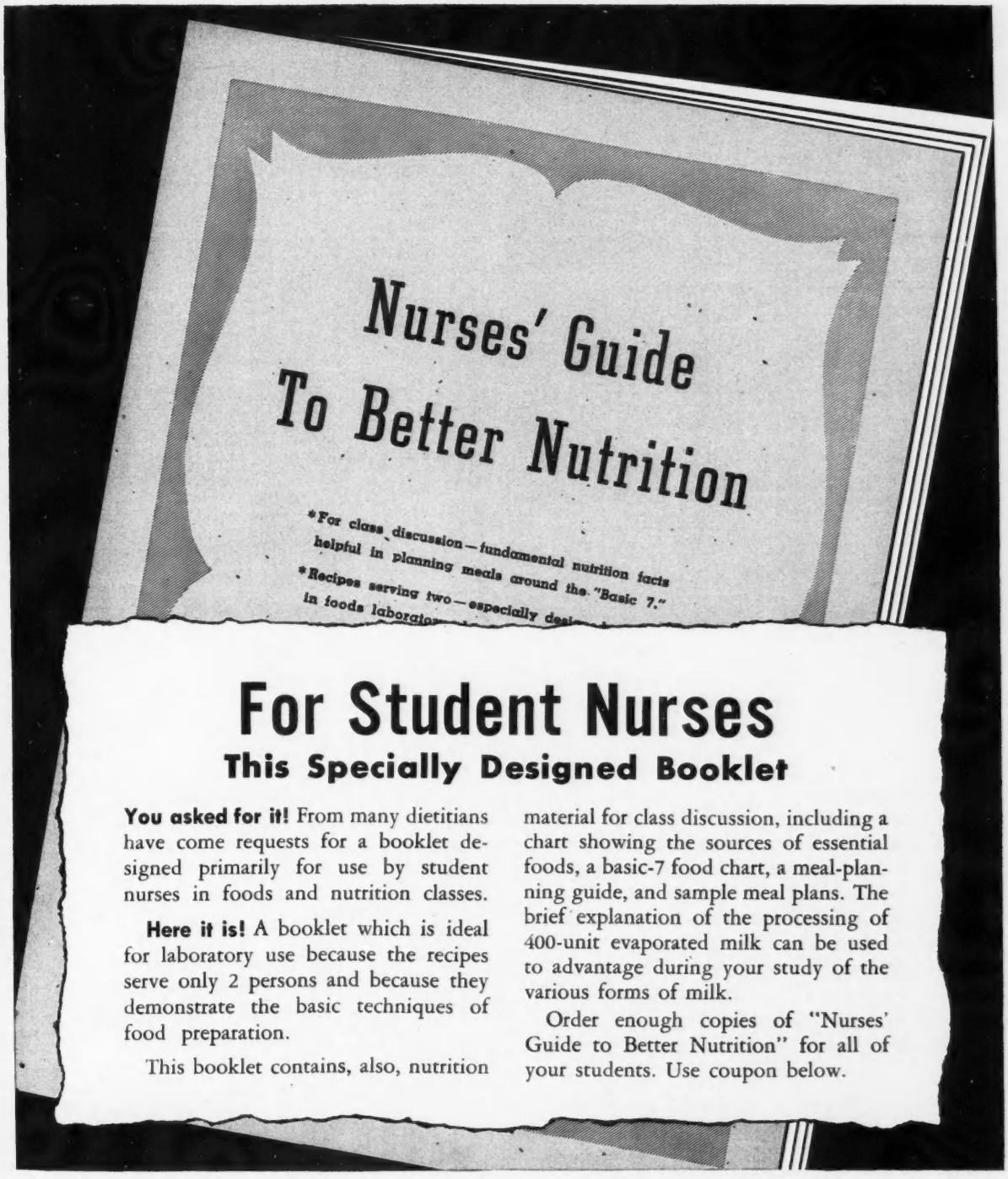
A *patient* is not an interruption of our work—he is the purpose of it. We are not doing him a favor by serving him—he is doing us a favor by giving us the opportunity to do so.

A *patient* is not an outsider to our business—he is a part of it.

A *patient* is not a cold statistic—he is a flesh-and-blood human being with feelings and emotions like our own, and with biases and prejudices.

A patient is not someone with whom to argue or match wits. Nobody ever won an argument with a patient.

A *patient* is a person who brings us his needs. It is our job to handle them profitably to him as well as to ourselves.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With minor changes it can be adapted to apply to employees, and might serve as the basis of a personnel policy. A "Memo to the Entire Staff" might read:

An *employee* is a most important person in the hospital.

An *employee* is not dependent on the hospital—the hospital is dependent on him.

An *employee* is not a necessary evil—he is our right hand and our left hand. We are not doing him a favor by employing him—he is doing us a favor by serving us in our work.

An *employee* is not an outsider to our business, he is a part of it.

An *employee* is not a cold statistic—a "Personnel"—he is a flesh-and-blood human being with feelings and emotions like our own and with biases and prejudices.

An *employee* is not someone with whom to argue or match wits.

An *employee* is a person who helps us and is helped by us, so that we all may perform our appointed tasks.

It is very easy to make a diagnosis of our personal difficulties and it is not too difficult to write the prescription. But, just as in the practice of medicine where prescriptions are of no avail without the healing power of nature, so in human relations in hospitals, the prescription is of no avail without a good conscience and the love of mankind.

CLASSES FOR PANTRY MAIDS

DORIS ALLEN

Floor Supervising Dietitian, Saint Luke's Hospital, Cleveland

A training program for the orientation of employees to their duties and to the organization has been incorporated as part of the personnel policy of Saint Luke's Hospital. As a part of this training program, daily classes for pantry maids are held in the Dietary Department. The purpose of these classes is two-fold; first, to make the employee aware that she is an integral part of the food service, and second, to acquaint her with her work. The pantry maids, therapeutic dietitians, and student dietitians meet each day for a 15-minute class. During this period there is a discussion of the menu for the day and the procedures for serving the food. This is followed by a formal inspection of hairnets, caps, uniforms, shoes, and personal cleanliness.

Three days a week there are formal lectures and discussions covering subjects which are pertinent to the success and efficiency of the maids' work and which bring about a deeper interest not only in each particular job but also in the hospital as a whole.

A speaker from some other department in the hospital is in charge of one class each week. These speakers may be members of the Nursing Department, Maintenance Department, Laboratory, X-ray Department, business offices, or the storeroom. They have added new interest and information to the meetings and have furthered inter-departmental relationships. The maids get a clearer picture of the hospital and the different departments working as a whole. A resident physician in the X-ray Department demonstrated the need for cooperation between their work and his department by showing the results of the fat-free test meals which are served to patients in preparation for gall bladder X-rays. He explained in simple language the way in which the gall bladder functions and what happens when a meal free from fat is served. He then showed and explained X-ray films of a functioning and nonfunctioning gall bladder. This proved to be a helpful and instructive class in demonstrating the importance of a fat-free diet. The maids understood and enjoyed it, and one employee requested that another similar class be given.

Another interesting outside speaker was the supervising nurse of the Public Health Department of the hospital. She explained the importance of preventing the spread of disease in the hospital. Of course, the special emphasis was on the handling of dishes and food served to patients from the pantries. She brought culture plates which showed the bacteria which had grown on them. One culture was of her own fingermark, a second was of a hair, and for the third she had chosen the bacterial growth of a single breath blown on the agar-plate. This illustrative material proved her thesis and brought about the anticipated results—a greater interest and care in the handling of food.

The second of the three formal classes within the training program is devoted to practical demonstrations of procedures pertaining to pantry maids' work. On these days demonstrations are conducted by the dietitians or by the pantry maids who volunteer to illustrate the procedure. Some of the demonstrations include setting a tray, the arrangement of working spaces, methods for cleaning and polishing a toaster, and other similar duties. The maids develop a sense of importance and pride in themselves and their work in giving a talk of this type. In teaching others, it is inevitable that many points are clearer after having given a demonstration. The maids observing the demonstration also offer constructive criticism. Much has been learned through these mutual discussions. The topic of one demonstration concerned the importance of a uniform sized serving. The employee showed the normal size portion of the foods on the menu for the noon meal of the day, and at the same timed showed the proper method of service and explained points concerning neatness. This demonstration improved the tray service as maids became more conscientious about giving servings of uniform size and wiping off the plates where food had not been served neatly.

All these protective qualities

essential to maintaining butter flavor and purity

WHY THE BEST BUTTER IS PACKAGED IN PARAFFINED CARTONS

1. Preserves quality and flavor.
2. Keeps out undesirable odors.
3. Protects perishable body and texture.
4. Gives better sanitary protection and prevents crushing.
5. Reduces moisture loss.
6. Convenience in handling.
7. Guards against rancidity.
8. Provides brand identification and assurance of quality.

FOR LITTLE MORE THAN ONE PER CENT

of butter's retail selling price*

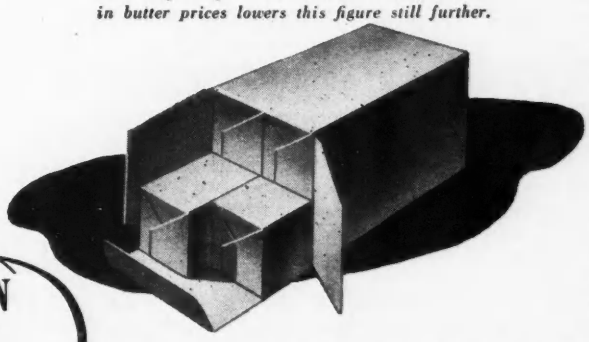
A recent preliminary survey to determine what percentage of the retail selling price of various foods represents the cost of the package, reveals that among sixteen frequently-purchased grocery items studied, the cost of the package ranged from a high of 23.67 per cent to a low of 1.34 per cent. The low of 1.34 per cent represents the total cost of the preferred package for butter . . . the paraffined carton.

For no other food is good packaging more important in protecting flavor and purity than for butter, yet for no other food is the percentage cost of good packaging so low.

Every pound of butter the consumer buys should be protected from creamery to the dinner table by proper packaging in a paraffined carton.

**Based on prices prior to June 30, 1946. Any increase in butter prices lowers this figure still further.*

Paraffined Cartons are also used in packaging Ice Cream, Margarine, Lard, Shortening, and Frozen Foods.



PARAFFINED CARTON RESEARCH COUNCIL

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THE BEST BUTTER IS PACKAGED IN *Paraffined* CARTONS

Another demonstration given by a pantry maid was the weighing of a diabetic diet. The menu was written by a dietitian, but a maid demonstrated how to set the scales and weigh the food. At the same time she discussed the diabetic diet and the methods of food preparation. The maids seemed interested in these demonstrations and many asked intelligent questions.

The third class for the week is given either by a staff or student dietitian. The subjects for these classes have included such topics as: attitude toward supervisors and fellow-workers, neat appearance in uniform, and lectures on special diets such as cardiac, reduction, and similarly related topics. One lecture which brought comment and criticism was on learning to work with others. Another by a student dietitian concerned the prevention of accidents in the pantry. The dietitian brought to their attention a number of safety measures which may not previously have been heeded, following which the maids along with all the dietary employees witnessed a movie on safety.

A sample schedule of the Saint Luke's Training Program for Pantry Maids for a four-week period is listed below:

Tuesday:	How to Work Quietly and Efficiently (Dietitian)
Wednesday:	The Hospital Health Clinic and Its Service to Employees in the Hospital (Clinic Supervisor)
Thursday:	How to Clean Salt and Pepper Shakers for the Patients' Trays (Demonstration by Pantry Maid)
Tuesday:	Appearing Well in Uniform (Dietitian)
Wednesday:	A Technician's View on the Importance of Sanitation in Service of Food (Assistant Pathologist)
Thursday:	Differences in Setting up a Regular and an Isolated Tray for Patients (Demonstration by a Pantry Maid)
Tuesday:	Gaining the Goodwill of People Around You (Dietitian)
Wednesday:	Importance of the Pharmacy Department (Pharmacist)
Thursday:	Weighing a Diabetic Diet (Demonstration by a Pantry Maid)
Tuesday:	Practicing Economy in Pantries (Dietitian)
Wednesday:	Employee Regulations at Saint Luke's (Personnel Manager)
Thursday:	Properly Dressed and Improperly Dressed Pantry Maids (Demonstration by Two Pantry Maids)

The dietitians as well as the employees have benefited through the questions asked and suggestions given. A broader, clearer understanding of the maids' work and its importance not only to the Dietary Department, but indirectly to the healing of the sick for whom the hospital is operated has been more clearly emphasized.

DEVELOPING COURTEOUS EMPLOYEES[1]

JOSEPHINE L. NESBITT

Consultant, Dining Service, New York, New Haven, and Hartford Railroad

Emphazing the importance of training employees in courtesy and good grooming is important to both their personal success on the job and to the success of their organization, whether it is a competitive or noncompetitive food service. An impression registers in the mind of the guest within the first 10 seconds of contact with the person who is to serve him. Likewise the first 10 words spoken are more important than the next 10,000. Any food manager wants that impression to be good.

The New Haven Railroad has adopted three "common-sense" principles, the adherence to which by all employees is responsible to a large extent for making that impression right. These principles are:

a. Appearance of the waiter.
b. Appearance of his station.
c. Courteous manner in which he serves his guest.

The principle applies regardless of whether it is a dining car, a grill car, a restaurant, or a nonprofit dining hall. The problem is to have well trained personnel of pleasing personality who give service with a smile and are interested in their jobs and in selling the goodwill of their organization.

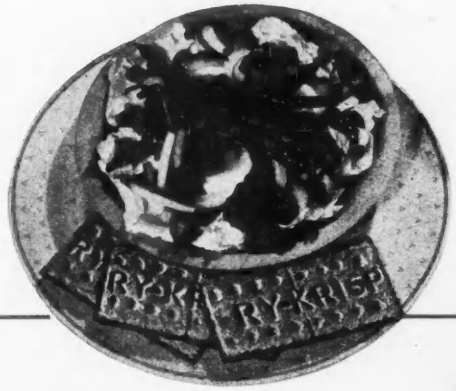
Let us first consider the employment interview. The basic requirements of a New Haven hostess are:

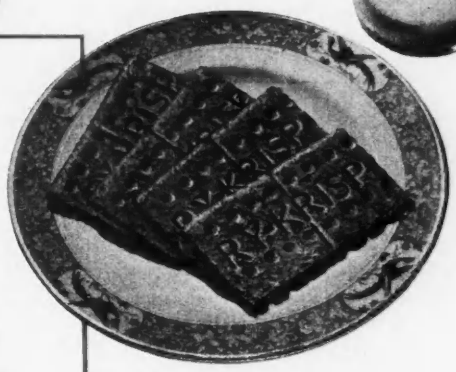
Age: 21 to 30 years.
Height: 5 ft. 3 in. to 5 ft. 7 in.
Weight: Approximately 113 to 132 lb.
Single.
Education: High school graduate and one year in an accredited college or university or the equivalent.

The basic requirements for a New Haven attendant who serves the guests are, with one exception, the same as those for the hostess. She is not required to have any college training. She must be a high school graduate.

Recently we were in need of hostesses. This emergency was created by a number of girls leaving to be married. One of the employment agencies in New York City advertised our positions and the response was so great our need was quickly filled. At the same time it developed that we had an equal need for attendants for a similar reason. Since girls were still applying for the hostess jobs, I tried to interest some of them in the attendants' positions. At first the reaction was negative, and each girl either bluntly or subtly showed that it was an insult to be asked to do waitress work.

[1] Presented at the New England Conference on Organization and Management, at Boston, June 6, 1946.





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1200-calorie diet for women, 1800 for men in handy 4x6″ booklet complete with menus and recipes.

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(Offer limited to residents of Continental United States)

I pointed out that each employee, no matter whether she carries a tray, is, in some capacity, serving someone higher up in our organization. One girl quickly asked, "Why do we have to be a high school graduate to do that kind of work?" That question afforded the opportunity to explain fully the importance of an attendant's job, and thus create a desire in her mind for the position.

"A girl who qualifies for the attendant's position on the New Haven Railroad is just not the ordinary type of girl. Acting as an attendant is an experience not every girl is privileged to enjoy, for the qualities necessary to fulfill such an assignment are difficult to find. Her charm, beauty, poise, intelligence, and other admittedly attractive qualities are only the beginning of our requirements, for these girls are front-line representatives. First and primarily, she must be and remain a lady. She is hand-picked, as you can see, and educated with care so she will have self-confidence and poise. She must know that her bearing, speech, and appearance is attractive and correct, and she must always know the proper thing to say to a guest. She must possess character, which is a combination of self-control, a sense of fairness, dependability, and tolerance. She must be courteous at all times, for courtesy is the keynote to success. The attendant is so important to the railroad that even her uniform is especially designed and custom-tailored to her individual measurements so that she will look as immaculate as a Power's model. The services of one of the most representative beauticians are available at all times so that each girl may be taught the fundamentals of beauty and charm."

By appealing to the girl's personal pride, I had created an intense desire in her mind for the job, to say nothing of a grave doubt as to whether or not she could qualify. She then asked about the rate of pay. I explained that although the hostess had the entire responsibility of running the car, the attendant earns considerably more, for tips on the railroad are exceptionally high. I also pointed out that if a girl makes good in the position of attendant, she may apply later for the hostess assignment, and her experience would off-set her lack of college education.

This particular girl took the job, felt it was a challenge, made good, applied later to become a hostess, and is today one of our best.

I have been told that there is little interest among high school and college students in the food business—that the percentage of those studying home economics is small. If this is true, the condition may be partially due to the fact that in the past the importance of menial jobs has not been stressed. Recently the New Haven Railroad required every person in the employ of its dining service to attend a two-day health and sanitation course given in New York by two Army officers under government direction. Much was accomplished. One point in particular—the dishwasher was made to realize that he was not merely the dishwasher, but rather the custodian of the health of the dining car's patrons. In this way he learned the relation of his job to the operation as a whole and its importance.

We have found through experience that titles are important. It satisfies a desire for recognition—approval by others. A person's business status is as important as his social status. In the grill car service there are three "countermen." The first is, in actuality, the short-order cook, the second the assistant cook, and the third, the dishwasher, though the term is never used. When the dishwasher's title became "counterman," the turnover among dishwashers quickly lessened. This is, by no means done to misrepresent the job either to the public or to the individual, but to give dignity to the job by giving recognition to the worker, and better service is the result.

In the railroad's training program for new employees the importance of courtesy and good grooming share equally, and only when both have been learned and put into practice do we feel employees are ready to serve the public.

Too much attention cannot be paid to courtesy, for the success of any business depends on its goodwill which can be built only by the constant exercise of unfailing courtesy, tact, patience, and efficiency. every employee should carry a cheerful expression and speak in a pleasant voice. This is good breeding and the foundation upon which business harmony is built.

Attractive personal appearance and good grooming are of equal importance in making a good impression upon guests. To achieve this every woman must consider certain facts—her features, figure, voice, and carriage. She should know the proper exercises and foods for fitness; how to avoid obesity; how to work without strain; the make-up most suitable for her and how to apply it; how to care for her hands and nails; how to style her hair; what clothes to choose and how they should be fitted to flatter her figure. The New Haven Railroad attempts to help the girl achieve these aims by giving her the benefit of the advice of one of the most expert beauty specialists and has made available the services of one of New York's oldest and best recognized tailors to make her uniforms.

By giving a job dignity, by pointing out the job's importance and creating a desire for it in the mind of the applicant, by employing only personnel with good educational background, and finally by following up these policies with a training program emphasizing customer relationships, courtesy, and goodwill, an employee force can be developed which is capable of creating and building goodwill by giving service with a smile.

Yours is on the way!

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To get yours to you sooner, we're making many more "Toastmaster" toasters than ever before in our history. So you may get yours sooner than you think.

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The National Habit
Wherever Folks Eat!

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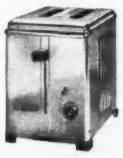
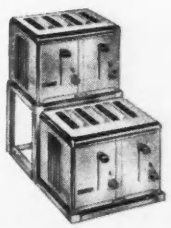
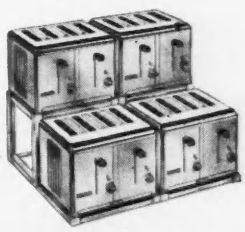


THE 2-SLICE "Toastmaster" toaster requires only 6¼" of counter space—yet toasts more than 125 slices per hour. Completely automatic—when slices pop up, current shuts "off."

THE 4-SLICE model pops up more than 250 slices of perfect toast per hour—over 4 slices a minute. Saves current—each 2-slot section is individually controlled. Needs no watching.



THE 8-SLICE toaster turns out over 500 slices per hour—over 8 slices a minute—in less than a foot of counter space. Compact! Combines two 4-slice toasters and a Duo-Stand.



THE 16-SLICE "Toastmaster" toaster pops up more than 1000 slices per hour—over 16 slices a minute—in less than two feet of counter space. Four fully flexible 4-slice units.

TENTATIVE PROGRAM, TWENTY-NINTH ANNUAL MEETING AMERICAN DIETETIC ASSOCIATION, NETHERLAND PLAZA, CINCINNATI OCTOBER 14–18, 1946

Pre-convention Meetings

Saturday, October 12

9:30 a.m.—CONFERENCE OF DIRECTORS OF APPROVED COURSES

Sunday, October 13

10:00 a.m.—CONFERENCE OF DIRECTORS OF APPROVED COURSES

Monday, October 14

9:00 a.m.—MEETING OF HOUSE OF DELEGATES, Bessie Brooks West *presiding* (Members are urged to attend and audit this business meeting.)

8:00 p.m.—RECEPTION, Pavillon Caprice, given by the Ohio and Cincinnati Dietetic Associations.

Tuesday, October 15

9:00 a.m.—REGISTRATION

12:00 noon—WELCOMING LUNCHEON, Marjorie Hall Siler *presiding*

How Can the World Pay for the Food It Needs? Charles P. Taft, Cincinnati

2:30 p.m.—GLOBAL NUTRITION, Bessie Brooks West *presiding*

(Speakers to be announced)

4:30 p.m.—EFFECTIVE COMMUNITY NUTRITION EDUCATION, Margery Vaughn *presiding*

Reports of Community Nutrition Projects:

Determining Community Food Patterns by Means of Diet Records

Effective Educational Devices in Presenting Nutrition

Discussion

4:30 p.m.—PERSONNEL MANAGEMENT—A DEMONSTRATION

Presented by Augusta Clawson, Government Services, Inc., Washington, D. C.

8:00 p.m.—NUTRITION APPRAISAL, Helen E. Walsh *presiding*

Appraisal of Nutrition in Civilian Population, Dr. John B. Youmans, Vanderbilt University, Nashville

The Influence of Some Recent Studies on the Interpretation of the Findings of Nutrition Surveys, Dr. William J. Darby, director of nutrition studies, Vanderbilt University, Nashville

Report of Results of U. S. Public Health Demonstrations, Dr. Richmond K. Anderson *or* Dr. Harold Sandstead, U. S. Public Health Service, Washington

8:00 p.m.—MEETING OF DIRECTORS OF APPROVED COURSES AND HEADS OF HOME ECONOMICS DEPARTMENTS, Margaret E. Terrell *presiding*

Summary of Conference of Directors of Approved Courses

Reports of Professional Education Projects:

Teaching Institution Management

Courses in Methods of Teaching Nutrition

Wednesday, October 16

8:30 a.m.—DIET THERAPY CONFERENCE, Anna Reimer *presiding*

Folic Acid Content of Food: A Review of Research To Date, Dr. E. L. R. Stokstad, Lederle Laboratories, Inc., Pearl River, New York

Reports of Diet Therapy Projects:

A Survey of Food Tables Used by Hospitals for Calculating Quantitative Diets

The Vitamin C Content of Foods Served in Institutions

8:30 a.m.—SHOWING OF ADMINISTRATIVE FILMS

8:30 a.m.—MEETING OF DIETITIANS WHO SERVED IN WORLD WARS I AND II, Dr. Mary deGarmo Bryan *presiding*

10:00 a.m.—NEW ADVANCES IN NUTRITION, Beula B. Marble *presiding*

The Role of Intestinal Bacteria in Nutrition, Dr. C. A. Elvehjem, chairman, Department of Biochemistry, University of Wisconsin, Madison

Folic Acid in the Treatment of the Anemias, Dr. Carl V. Moore, professor of medicine, Washington University, St. Louis

The Dietary Treatment of Liver Diseases, Dr. R. Levine, director of metabolic and endocrine research, Michael Reese Hospital, Chicago

10:00 a.m.—KITCHE LNAYOUTS, ORGANIZATION, AND MANAGEMENT, Bertha Biltz *presiding*

(Speakers to be announced)

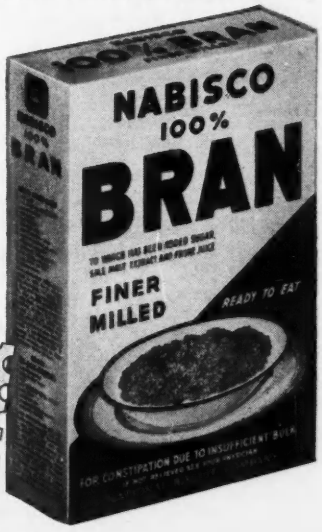
12:00 noon—LUNCHEON FOR PRESS RELATIONS CHAIRMEN, Edith M. Barber *presiding*

Patients get DIET-BULK this way— plus 3 important nutrients

When the doctor finds constipation is due to insufficient bulk—crisp, crunchy Nabisco 100% Bran furnishes needed diet-bulk in delicious form. And remember—when patients eat Nabisco 100% Bran, they're getting also important iron, phosphorus, and Vitamin B_1.

Containing all the nutritive factors of whole bran, Nabisco 100% Bran is finer-milled to make bran particles smaller, "easier" on the patient. Mild and gentle in action.

Sold in pound and half-pound packages at foodstores.



finer-milled

TO MAKE BRAN PARTICLES SMALLER

One of the many fine foods baked by Nabisco NAtional BIScuit COmpany

2:00 p.m.—AN EVALUATION OF TEACHING DIETETICS TO STUDENT NURSES, Dr. Helen A. Hunscher *presiding*
Working Conference on Construction of Examination Questions for Nurses
Discussion Leaders: Marjorie Hall Siler, Aileen Merwin, Eva Ylvisaker

2:00 p.m.—FOOD MANAGEMENT AND NUTRITION EDUCATION OPPORTUNITIES IN THE SCHOOL LUNCHROOM, Edna Gilbert *presiding*
(Speakers to be announced)

2:00 p.m.—METHODS OF DIET INTERVIEW, Helen Brecht *presiding*
An Analysis of Diet Interviews, Dr. Charlotte Babcock, Chicago
Discussion

4:00 p.m.—COMMUNITY NUTRITION ROUND TABLE, Maxine Turner *presiding*
Dietary Consultation Service

4:00 p.m.—FOOD SERVICE EQUIPMENT—A VIEW INTO THE FUTURE, Alice M. Fenno *presiding*
(Speaker to be announced)
Reports of Food Administration Projects:
Improved Design in Kitchen Equipment
Planning the Postwar Kitchen
Equipment Requirements and Standards for Institutional Kitchens Serving 75, 150, and 300 Persons

8:00 p.m.—OPEN MEETING, Eleanor Maclay *presiding*
Speakers:
Dr. Paul R. Hawley, chief medical director, Veterans Administration, Washington
Dr. Frank F. Tallman, commissioner of mental hygiene, Department of Public Welfare, Columbus, Ohio

Thursday, October 17

8:30 a.m.—CONFERENCE: MANUAL FOR TEACHING NUTRITION AND DIETETICS TO STUDENT NURSES, Aileen Merwin *presiding*
Speaker: Claire M. Favreau, R.N., New York State Board of Nurse Examiners, Albany
Discussion

8:30 a.m.—SHOWING OF FILMS

8:30 a.m.—TRAINING PROGRAMS FOR FOOD SERVICE EMPLOYEES
Speaker: Dr. Orpha M. Thomas, Columbia University, New York City
Report of Food Administration Project:
Manual for Training Food Service Employees

10:00 a.m.—PERSONNEL RELATIONSHIPS, Mable MacLachlan *presiding*
Personnel Administration, Richard H. Moulton, vice-president, General Foods Sales Company, New York City
(Other speakers to be announced)

10:00 a.m.—MATERNAL AND CHILD HEALTH, Dr. Miriam E. Lowenberg *presiding*
Congenital Malformations Induced by Maternal Nutritional Deficiency, Dr. Josef Warkany, Children's Hospital Research Foundation, Cincinnati
Effect of Protein Intake on Skeletal Muscle Growth of Children, Dr. Genevieve Stearns, research professor of pediatrics, State University of Iowa, Iowa City
(Other speaker to be announced)

12:00 noon—LUNCHEONS FOR ALUMNI GROUPS

2:00 p.m.—PRESENT DAY CONCEPTS OF DIET THERAPY, Eva Ylvisaker *presiding*
The Dietary Management of Spontaneous Hypoglycemia, Dr. Jerome W. Conn, associate professor of internal medicine, University of Michigan, Ann Arbor
The Use of "Unrestricted" Diets in Juvenile Diabetes Mellitus, Dr. George M. Guest, Children's Hospital Research Foundation, Cincinnati
Lecture-Slide Demonstration—Diet in Relation to Kidney Function, Dr. George W. Thorn, physician-in-chief, Peter Bent Brigham Hospital, Boston

2:00 p.m.—SANITATION IN FOOD SERVICE DEPARTMENTS, Beulah Hunzicker *presiding*
Studies on Food Poisoning, Dorothy Hussemann and Dr. Fred W. Tanner, University of Illinois, Urbana
(Other speakers to be announced)

4:00 p.m.—VISIT EXHIBITS

6:00 p.m.—BUFFET SUPPER HONORING EXHIBITORS, Mary I. Barber *presiding*
Parade of Products

8:00 p.m.—MEETING OF OFFICERS OF STATE DIETETIC ASSOCIATIONS, Mable MacLachlan *presiding*

8:00 p.m.—CONFERENCE OF VETERANS ADMINISTRATION DIETITIANS, Grace Bulman *presiding*

Friday, October 18

8:30 a.m.—DIET IN HEALTH AND DISEASE, Doris Johnson *presiding*
Oral Health in Relation to Teeth, Dr. Robert Stephan, Zoller Memorial Dental Clinic, University of Chicago
Reports of Diet Therapy Projects:
A Study of Low Sodium Diets as Prescribed by Physicians and Surgeons
Mechanical, Chemical, and Thermal Characteristics of the Bland Diet
Test Diets as Prescribed by Physicians and Surgeons Used for Diagnosis of Certain Diseases

NOW!

STAINLESS STEEL

Savory

Conveyor-type Toasters

Gas and Electric Models

Redesigned in smart modern fashion—engineered to bring you all the lessons learned from precision wartime manufacture—Savory offers you the finest toasters ever produced for quantity production of quality toast with

SIX OUTSTANDING SAVORY ADVANTAGES

1. CONVEYOR PRINCIPLE. Toasts faster and better with less attention. Unloads itself. Produces uniform, high quality toast without discards or waste motion.

2. AUTOMATIC OPERATION. Heat adjustable to bread characteristics. Positive thermostatic control maintains set temperature without further attention. Can be regulated for peak or off peak demands.

3. LOW OPERATING COST. Costs but pennies per hour to operate.

4. LOW MAINTENANCE COST. Sturdy stainless steel construction, with aluminized steel structural members. Completely protected against rust and corrosion.

5. COMPACTNESS. Unit with 360 slices per hour capacity requires only 18⅝″ × 16⅝″ counter space, 720 slice unit only 23⅛″ × 16⅝″.

THE 3 SAVORY STEPS TO PERFECT TOAST
STEP 1
MOIST HEAT FOR SOFT CENTERS
STEP 2
TOASTING HEAT FOR NUT-SWEET FLAVOR
STEP 3
FINISHING HEAT FOR GOLDEN-BROWN COLOR

6. FITS ALL NEEDS. Gas operated or all-electric models for toasting bread, buns and sandwiches.

Place Your Order *Now* With
Your Regular Equipment Dealer

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EQUIPMENT, INCORPORATED

128 Pacific St., Newark 5, N. J.

Sold by leading dealers everywhere

8:30 a.m.—HISTORY OF NUTRITION, Dr. E. Neige Todhunter *presiding*
History of Food Habits in Hawaii, Dr. Carey D. Miller, head, Home Economics Department, University of Hawaii, Honolulu
(Other speakers to be announced)

10:00 a.m.—FOOD PROBLEMS IN OTHER COUNTRIES, Frances MacKinnon *presiding*
Present Nutrition Status of the Children of Czechoslovakia, Dr. Marie Rieglova, nutritionist, Czechoslovakia
Nutritional Aspects of Food Planning in Great Britain, Dorothy Hollingsworth, Scientific Adviser's Division, Ministry of Food, London
(Other speakers to be announced)

10:00 a.m.—FOOD TECHNOLOGY, Elspeth Bennett *presiding*
Experimentation with Frozen Foods in Institutions, Edith Nason, Syracuse University
(Other speakers to be announced)

12:00 noon—LUNCHEONS FOR ALUMNI GROUPS

2:00 p.m.—STANDARDS OF FOOD PRODUCTION AND SERVICE, Fern Gleiser *presiding*
Private Club, Helen L. Corbitt, Houston Country Club, Houston, Texas
Residence Hall, Irene Boelts, West Quadrangle, University of Michigan, Ann Arbor
Industry, Opal Bowers, General Electric Company, Schenectady, New York
Hospital, (to be announced)

4:00 p.m.—PROGRAM OF WORK, 1946–1947, Bessie Brooks West *presiding*

8:00 p.m.—ANNUAL BANQUET, Bessie Brooks West *presiding*

>>>◆<<<

The Bone Marrow in Experimental Folic Acid Deficiency

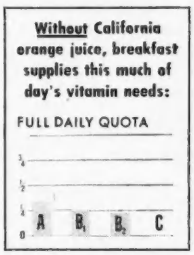
THE RECENT important discovery of the striking value of pure folic acid in the treatment of various human macrocytic anemias has added interest and significance to experimental studies on this new B vitamin. One problem of immediate importance is the type of alterations produced in the bone marrow in folic acid deficiency and the effect of administration of folic acid on these changes. Further reason for the fundamental importance of studies of the bone marrow is the fact that folic acid deficiency in the experimental animal may produce not only an anemia but also a severe granulocytopenia.

Bone marrow studies have recently been made in rats fed a diet deficient in folic acid, due presumably to the addition of 1 per cent succinylsulfathiazole, which inhibits bacterial synthesis of folic acid (*Lacto-bacillus casei factor*) in the intestine. Leukopenia, granulocytopenia, and less frequently anemia developed regularly in the rats, and the administration of pure folic acid either prevented or corrected the dyscrasias. The bone marrow of the animals deficient in folic acid showed progressive hypoplasia with general cellular depletion, especially of the myeloid series. The erythroid series was also usually depleted even though distinct anemia was not found. The administration of folic acid produced a striking immediate response discernible within two or three days both in the bone marrow and in the peripheral blood, manifested by an increase in hematocrit and in total leukocyte and polymorphonuclear, eosinophil, lymphocyte, and normoblast counts. The response of the bone marrow was a spectacular myeloid proliferation and erythroid hyperplasia. Later the erythroid series was frequently crowded out by myeloid hyperplasia. The marrow subsequently returned to normal after a temporary overcompensation.

These studies emphasize the profound fundamental effect of folic acid on hemopoiesis and leukopoiesis and invite further investigations on the mode of action of this substance in blood formation.—*From an editorial in the J. A. M. A., April 27, 1946.*

BREAKFAST... with or without orange juice?

More than any other meal, breakfast must build up pep and energy. A serving of cereal with milk, buttered toast, and an egg helps do it and provides some vitamins, too. But without orange juice, this breakfast gives no vitamin C. Because so few foods are good sources of C, it's best to get a full day's share at breakfast.



When California orange juice is added, every member of the family gets off to a nourishing start with a *really good* breakfast. The vitamin C, supplied by orange juice, fights fatigue and infection, protects teeth and gums, keeps you feeling young. There's no brighter, cheerier more delicious way to start the day.

JUICY SMALL SIZES ARE BEST ORANGE BUY NOW

Small oranges will be plentiful for the remainder of the Valencia season, ending the first part of November. They are extra sweet and juicy now. Their juice is just as rich in vitamins and minerals as the scarce larger oranges.

SO MANY WAYS TO USE THEM!

They are more than juice oranges. Ideal for refreshing, healthful lunch box dessert... fruit cups ... salads ... for good eating any time.

CALIFORNIA ORANGES

Sunkist

BEST FOR JUICE - *and Every use!*

Book Reviews

Diabetic Care in Pictures. By Helen Rosenthal, associate dietitian, Food Clinic, The Boston Dispensary; Frances Stern, chief, Food Clinic, The Boston Dispensary; and Joseph Rosenthal, M.D., chief, Diabetic Clinic, The Boston Dispensary. Philadelphia: J. B. Lippincott Company, 1946. Cloth, spiral bound. Pp. 150. Price $2.

It is generally assumed that the diabetic patient should know his disease and how to control it. On this assumption, numerous books have been written for the use of such patients. Admittedly, however, most of them have found only a limited acceptance and usefulness for patients, for they necessitate on the part of the patient a broad familiarity with the language and a willingness to develop an understanding of technical terms and tables.

A sound way of overcoming some of these disadvantages has been found to be through the use of visual methods of teaching. This fact has been appreciated by the authors for many years. These workers have been outstanding for their keen insight and intelligent use of original illustrative material.

The photographs and the 137 original illustrations giving a step-by-step picture story answers virtually all questions asked by diabetics. Injection techniques are fully illustrated, diet and required foods are graphically shown with household measures. The pictured "exchanges" provide a direct and easily understood concept of food values. Furthermore, the fundamentals of a normal diet can be easily appreciated from the pictured mineral and vitamin "exchanges."

The authors explain and illustrate clearly the symptoms and treatment of insulin reactions and recognition of acidosis and coma. Blood and urine tests are illustrated in color.

The inclusion of the modern trend toward the consideration of personal and social factors also enhances the value of the book. It can be expected that this book will become widely used and accepted by professional workers and patients.

Carbohydrate Metabolism. By S. Soskin, M.D. and R. Levine, M.D. Chicago: University of Chicago Press, 1946. Cloth. Pp. 315. Price $6.

This book presents an excellent correlation of the physiological, biochemical, and clinical aspects of carbohydrate metabolism—aspects which previously have been taught entirely separately from each other. This volume is intended for the use of students of physiology, biochemistry, and medicine.

However, it should also be useful to dietitians who seek to keep abreast of the fundamentals upon which the clinical applications are based. Much of the newer knowledge is not easily available, nor is it critically evaluated and reviewed. This is particularly true of the literature on tissue-enzyme chemistry and of the literature covering the pathological physiology of diabetes.

Because of the close interrelationship of protein and fat with carbohydrate metabolism, it is logical to expect the detailed discussion of protein and fat metabolism.

A selected list of 1200 references gives sources both of crucial experimental facts and of review articles covering certain aspects of the subject in great detail.

The book is divided into five parts including:

I. The Biochemistry and Energetics of Carbohydrate Metabolism
II. Introductory Physiological Considerations
III. Critical Survey of the Classical Criteria of Diabetes
IV. The Role of the Endocrine Glands in Carbohydrate Metabolism
V. Integration of Physiological and Clinical Aspects

The readability of this book may be attributed in a large part to the clear definitions and consistent use of technical terms, to the logical sequence of factual information, and to the effective use of charts, graphs, and illustrations.

It is highly recommended for use by dietitians and nutritionists who wish to have up-to-date, authoritative information.

Alimentación y Tecnica Culinaria. By Dr. Esteban Kemeny. Santiago, Chile: Central de Publicaciones, 1945. Paper. Pp. 199.

This is Volume I of the "Bibliotecade Alimentación"; other volumes in the realm of foods are in preparation. Dr. Kemeny has achieved a refreshing combination of philosophy, science, and practical information not often found in texts on nutrition. As nutritional director of the board of public welfare in Santiago, and head of the school for dietitians, he is acquainted with the vital feeding problems of the present day, but he has not allowed the newer knowledge of nutrition to obscure the value of the matchless French cuisine, and his precise knowledge of intricate culinary procedures is surprising.

The early chapters of the book deal with the history of feeding and the development of dietetics. The latter he divides into three periods—classical, scientific, and social. The classical era, if we disregard the Greco-Roman teachers, was the day of the private clinic where the "dietetic prescription" and the regimen resounded mainly to the glory of the physician. The scientific period began in the second half of the 19th century along with the industrial revolution. The third, and present period, the social era, is dedicated to better nutrition for everybody.

Considerable attention is given throughout the book to terms, one chapter dealing entirely with nomenclature. The meaning and relation of terms is shown frequently in outline form for the purpose of illustrating and simplifying the text. Dr. Kemeny develops some interesting ideas along this line. Other chapters deal with abnormalities in ingestion, the nutritive process, foods and nutritive substances, and methods of teaching culinary technique. Dr. Kemeny has a faculty for reducing material to basic facts and of presenting them in logical order. The amount

Post Scripts ... by Bob Dall

NO BODY CAN RUN ALL MORNING ON A SKIMPY BREAKFAST

AND EXPECT TO CATCH UP AT LUNCH!

WHOLE GRAIN NOURISHMENT FIGHTS HALF-TIRED MORNINGS

(AUTHORITIES SAY WE NEED 1/4 TO 1/3 OF OUR DAILY FOOD REQUIREMENTS AT BREAKFAST!)

EVERY POST CEREAL EITHER IS WHOLE GRAIN OR IS RESTORED TO WHOLE GRAIN VALUES IN THE IMPORTANT NUTRIENTS, THIAMINE, NIACIN AND IRON.

CEREAL

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FRUIT

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MILK

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BREAD & BUTTER (OR FORTIFIED MARGARINE)

IT ADDS UP TO A GOOD BREAKFAST

CHOOSE CEREALS FOR CRISPNESS, FLAVOR AND VARIETY.

FOR INSTANCE:

GRAPE-NUTS

PRODUCTS OF GENERAL FOODS

A GENEROUS BOWLFUL* OF POST'S GRAPE-NUTS WITH MILK AND SUGAR SUPPLIES:

	PROTEIN	CALCIUM	IRON	THIAMINE	RIBOFLAVIN	NIACIN
AMOUNTS	7 G.	147 Mg.	1.8 Mg.	.31 Mg.	.30 Mg.	1.5 Mg.
% OF ADULT MINIMUM DAILY NEEDS	10%**	20%	18%	31%	15%	10%**

CALORIES 199

* POST'S GRAPE-NUTS (1 OZ.), MILK (4 OZ.), SUGAR (1 TSP.)

** PROTEIN BASED ON 70 G; NIACIN BASED ON 15 Mg.

of accurate detail which he manages to include in a book of this size is remarkable. For example, several chapters deal with actual procedures in food preparation; beginning with first principles, Dr. Kemeny details the methods of slaughter for various animals (including llamas and buffalo) and continues through the refinements of mixing different types of batters and doughs.

Dr. Kemeny complains that cook books have too much near-repetition, and his remedy for this is a number of basic formulas. One section contains a "genealogical table" of French sauces. The French terms for procedures are given throughout the book, for Dr. Kemeny believes that French fulfills the need for a standard technical language in the culinary field. In addition to the basic methods and formulas, there are recipes for some interesting Chilean dishes, together with a list of foods familiar to Chilean tables.

Chapters on the composition of menus, the national and international cuisine, types of kitchens, the laboratory kitchen, equipment for the class kitchen, and tables of food composition complete the book.—*Mrs. Margaret Shatswell Price.*

Health Education Handbook for Chicago and Cook County. Chicago: Council of Social Agencies of Chicago, 1946. Paper. Pp. 46 Free.

The Council of Social Agencies of Chicago is a voluntary membership association of more than 200 public and nonprofit health and welfare associations of Metropolitan Chicago. It is concerned with all phases of social work.

The Health Education Committee represents about 35 agencies, public and voluntary, which provide programs of public health education and service. The preparation of this handbook has been one of the projects undertaken by this Committee.

The book is intended, according to Dr. Edward A. Pisczcek, to bring to the teacher, the public health worker, the adult education leader, and the club or assembly program director information about sources of current health education, literature, and services.

Hospital dietitians and community nutritionists in the Chicago area will welcome factual information concerning the public and private welfare agencies and organizations, together with their functions and services offered. The book also contains an annotated list of books on principles, methods, and materials in health education, periodicals of special interest to health workers, bibliographies, and indexes of importance in health education, information about health and educational films, and a summary table of health education materials and services available in the Chicago area.

The publication is available for free distribution through the generosity of the Elizabeth McCormick Memorial Fund.

Food Control and Nutrition Surveys, Malabar and S. Kanara. By K. G. Sivaswamy, V. R. Nayanar, R. G. Kakade, and L. N. Rao. **Disease Surveys.** By 11 Doctors. Royapettah, Madras, India: Servindia Kerala Relief Center, May, 1946. Paper. Pp. 225. Price Rs. 4.

Surveys have been made to ascertain the effects of food scarcity on public health and to evaluate the effectiveness of measures of food and price control.

In the first section the Hon. Dr. Pandit H. N. Kunzru describes the severe shock suffered by southern India owing to the cessation of imports of rice from Burma and the poor yield of rice in 1942–43. Between 30,000 and 40,000 people died during the cholera epidemic which was believed to be due indirectly to the widespread shortage of food and malnutrition.

According to K. G. Sivaswamy, the remedy lies in the conservation and equitable distribution of existing food resources and their development by immediate and long-range programs. In developing a plan for rationing in Malabar, it was recommended that fish, cocoanut, groundnut, and grains and pulses be rationed along with cereals. Goatbreeding was considered to have greater scope than cattle breeding for increasing the consumption of milk and meat.

Appendices include the following subjects: food scarcity in Malabar; family dietaries in Malabar; report on the nutritional survey in Pazhayangadi; food in Nayanar children's homes in Malabar; and vital statistics and diseases.

Inadequate Diets, Deaths and Diseases and a Food Plan for Madras. By K. G. Sivaswamy. **Nutritional Diseases.** By M. P. Chacko, M.D. **Food Hints.** By S. Gurubatham, M.D. Royapettah, Madras, India: Servants of India Society, May, 1946. Paper. Pp. 72+11. Price Rs. 2.

Statistics have been collected from Madras which indicate that excess deaths over births ranged between 4.3 and 0.5 where previously there had been an excess of births over deaths by about 13 per 1000 population between 1936 and 1940.

Deaths increased as a result of cholera, small pox, plague, dysentery, diarrhea, scabies, epidemic dropsy, and ulcerative inflammation. An examination of 4500 patients by medical men in the coastal areas between Cape Comorin and Mangalore during the early part of 1945 showed a preponderance of anemia, scabies, digestive troubles, and nervous diseases.

Informative notes are included describing the dietary deficiencies of the people in Malabar and the diets of natives in the islands of the Indian Ocean, South Africa, and South America, and of the people in occupied Europe as well as the relationship of excessive carbohydrate to edema, anemia, ulcers, and nervous disease.

A food plan to correct the deficiencies in Madras is discussed. It was recommended that purchasing power of the poorer classes should be increased or at least protected against exploitation, to prevent a 20 per cent reduction in rations. It was further recommended that regional committees should decide fair rents and fair agricultural wages in rural areas. The consumer interests should be fully represented in food councils.

The cooperative stores were considered preferable to any other agency to aid in procurement and distribution. For the poorer classes a cheaper subsidized ration was recommended which should be comprised of cereals, fish, pulses, cocoanut, jaggery, and groundnuts. Excessive consumption of sweet potatoes should be discouraged. The vulnerable groups would be protected by liver extracts, iron, calcium, yeast, and vitamin tablets, through hospitals and dispensaries. Milk would be supplied to infants and expectant mothers, as well as nourishing lunches for all school children.

The author reviews certain short-range programs for increasing production and recommends schemes for the conservation of rain water, expansion of the fishing industry, and goat breeding by artificial insemination.

Physiological Chemistry. 7th ed. By J. F. McClendon, research professor of physiology, Hahnemann Medical College, Philadelphia. St. Louis: The C. V. Mosby Company, 1946. Cloth. Pp. 463. Price $4.25.

This revised seventh edition of a standard work has been occasioned by the rapid advance in physiological chemistry. The sections on enzymes and vitamins, in particular, have been extensively revised to bring them up-to-date.

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Current Literature

Contributed by Janette C. Carlsen, Dietary Department, Johns Hopkins Hospital; Quindara Oliver Dodge, Women's Educational and Industrial Union, Boston; Helen Brecht, Elizabeth McCormick Memorial Fund, Chicago; and Mrs. Margaret Shatswell Price, Winter Park, Florida.

AMERICAN JOURNAL OF DIGESTIVE DISEASES

Vol. 13, June, 1946

*Diet in uncontrolled diabetes preceding acute neuropathy. H. F. Root and C. C. Mascarenhas.—p. 173.

*Fasting blood sugar versus post-prandial blood sugar. A. Sindoni—p. 178

*The control of diarrhea by tomato pomace. L. M. Morrison.—p. 196.

Diet in Uncontrolled Diabetes Preceding Acute Neuropathy. The frequency of severe disabling forms of diabetic neuropathy (neuritis) poses a problem in therapy and requires a better understanding of the nature of the disorder. Three cases are presented in which diets excessive in calories and vitamins were taken during the period preceding onset of acute diabetic neuropathy in one case with recovery and in a second case with relapse which followed failure to continue treatment with diet and insulin. In true diabetic neuropathy the administration of excessive amounts of thiamin and of other vitamins, without therapeutic control of diabetic metabolism, does not suffice to bring relief to severe cases.

Fasting Blood Sugar vs. Post-Prandial Blood Sugar. "Adequate diabetic control," as based upon results of fractional or 24-hour urine examination of sugar content or upon the blood sugar before a meal, has not decreased the incidence of vascular degenerative complications. Fasting blood sugar is not a complete index of the diabetic's metabolic power for carbohydrate and often may be misleading when it is the sole laboratory guide of the diabetic's progress. One to 3 hours, generally 2 hours, after an adequate normal meal is the interval of choice for determining the diabetic's metabolizing power for food. A discussion of the effects of the various kinds of insulin upon the blood sugar level is included with the conclusion that of the two insulins—protamine zinc or globin insulin—globin insulin is preferred by the present investigators for control of the diabetic carbohydrate metabolism.

The Control of Diarrhea by Tomato Pomace. Tomato pomace was employed during a five-year period in the treatment of more than 100 patients with various types of diarrhea. Tomato pomace is an effective remedy in the treatment of many types of diarrhea in human subjects. Diarrhea from simple or nonorganic cause is usually arrested within 24 hours, and in diarrhea not responding to anti-diarrheal medication tomato pomace will often restore bowel movements to normalcy.

AMERICAN JOURNAL OF ORTHOPSYCHIATRY

Vol. 16, January, 1946

*Food habits of adolescents in relation to family, training, and present adjustment. E. F. Hellersberg.—p. 34.

*Behaviour problems of eating. L. S. Selling.—p. 163.

Food Habits of Adolescents. Two groups of college students and their mothers cooperated in this study. Questionnaires were used to gain insight into the training in food habits and the present attitude of the adolescent. The participants checked food lists for preferences, gave motivations for extreme likes and dislikes, and stated opinions on the possible harmful results of eating disliked foods. These data were used to determine whether the food pattern was positive, negative, or medium.

Other questions were used to determine the adolescent's state of adjustment and the family pattern. The relationship between these two ratings was observed in an attempt to find the family pattern most often associated with good adjustment. The author concludes that good food habits are related to the individual's general adjustment; mature adjustment is not produced by a single type of family pattern—strict, lenient, or intermediate—but depends upon the parents' adaptability to the changing needs of the child and to a cultural pattern which is still in transition.

Behaviour Problems of Eating. The causes of feeding problems involve the causes of behaviour problems in general; this paper attempts to note why the symptom involves eating rather than other conduct. Vitamin deficiencies as a cause of personality deviations occur infrequently in comparison with the number caused by maladjustment or interpersonal conflicts. These latter causes may be behind the avitaminosis.

The universality and frequency of eating are related to its use as an emotional tool. When security and affection are present in the home, the child is not apt to develop bizarre food habits. Lack of affection, attention, or social contacts frequently results in undereating; lack of security in overeating. In the emotionally disturbed home, slightly undesirable food habits are overemphasized. The crusading attitude of the nutritionist becomes a tool of the maladjusted parent. The overemphasis which nutritionists have placed on food offers a fixation for an emotional reaction upon or by the child.

Primarily difficulties with eating result because the home is insecure or because the child is insecure in his relationships with his parents.

AMERICAN JOURNAL OF PHYSIOLOGY

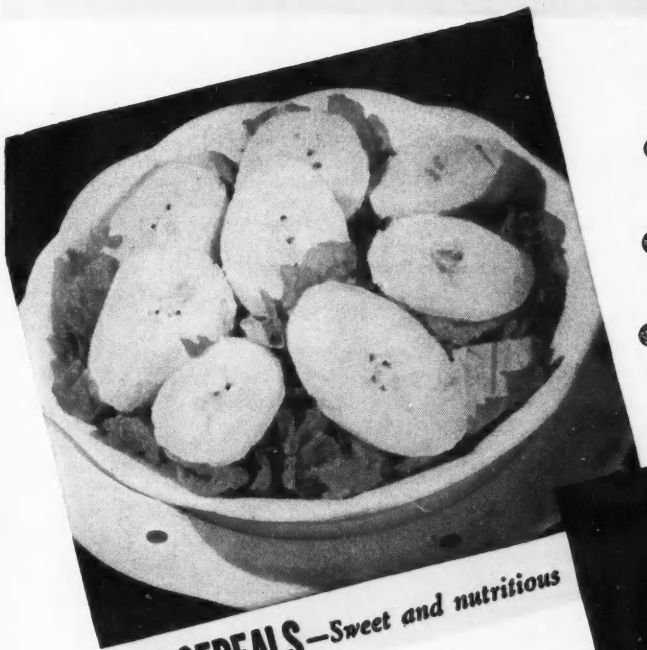
Vol. 146, June, 1946

*The renal clearance of essential amino acids: tryptophane, leucine, isoleucine and valine. K. H. Beyer, L. D. Wright, H. F. Russo, H. R. Skeggs, and E. A. Patch.—p. 330.

*Previous diet and the role of the kidney in the metabolism of the eviscerated rat. S. Roberts and L. T. Samuels.—p. 358.

The Renal Clearance of Four of the Essential Amino Acids. The study of the renal clearance of amino acids is an integral part of a much larger problem having to do with research in metabolic nitrogen balance, as stimulated by the clinical use of protein hydrolysates or mixtures of amino acids. A number of reports indicate that at normal plasma concentrations all the amino acids which have been

BANANAS...a natural sweetener



ON CEREALS—*Sweet and nutritious*

● One fully ripe banana (yellow peel, flecked with brown), average size, contains the equivalent of 5 level teaspoons granulated sugar—as follows:

4.6% dextrose	Total sugars 20.4%
3.6% levulose	
12.2% sucrose	

PLUS

Vitamin A	310-420 International Units
Thiamin (B_1)	52-67 Micrograms
Riboflavin (G)	110 Micrograms
Niacin	.75 Milligrams
Ascorbic Acid (C)	12.5-13.7 Milligrams

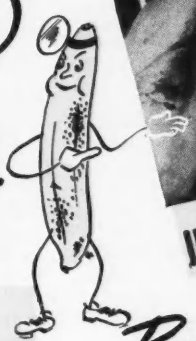
PLUS

11 Essential Minerals — 120 Calories

IN MILK SHAKES *For flavor and high food value*

½ OF 1 BANANA CONTAINS 2½ TEASPOONS OF SUGAR

VITAMINS AND MINERALS, TOO!



ENJOY BANANAS AT THEIR BEST

DO	let them ripen at comfortable room temperature.
DON'T	put them in the refrigerator because this prevents proper ripening.
KNOW	that bananas are fully ripe when the golden peel is flecked with brown.

FRUIT DISPATCH COMPANY

Banana Milk Shake

(290 CALORIES)

1 fully ripe banana* — **1 cup COLD milk**

**Use fully ripe banana . . . peel well flecked with brown*

Peel banana. Slice into a bowl and beat with electric mixer or rotary egg beater until smooth and creamy. Add milk and mix thoroughly. Serve COLD. Makes a 10 to 12 ounce drink.

NOTE: If electric drink mixer, which crushes fruit while mixing, is used, break banana into mixer cup, add milk and mix. Add ice cream before mixing, if desired.

studied are almost totally reabsorbed, but that their reabsorption by the renal tubules at elevated loads differs considerably from one compound to another. In this study tryptophane, leucine, isoleucine, and valine were given to dogs and microbiological assays on urine samples were carried out. The results obtained showed little percentage decrease in the tubular reabsorption of tryptophane, isoleucine, valine, and leucine even though their plasma concentrations were increased as much as 10- to 70-fold.

Diet and Renal Function. The ability of the fat-fed rat to maintain after evisceration a higher blood sugar level and to survive longer than similarly treated carbohydrate-fed animals was largely eliminated by removal of the kidneys. These differences could not be restored by prolonging the survival of these eviscerated, nephrectomized animals with intravenous injections of glucose. The relatively small difference in the blood sugar curves which remained after nephrectomy was mainly in the period immediately following evisceration. The differences in metabolism in the nonnephrectomized eviscerated rats previously on the two types of diet were not due to a differential rate of renal gluconeogenesis, as determined by simultaneous arteriovenous differences. The nitrogen content of the kidneys of rats on the two diets was similar both before evisceration, and 6 hours thereafter.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 36, June, 1946

*Present positions of DDT in the control of insects of medical importance. F. C. Bishop.—p. 593.

DDT in the Control of Insects. A discussion of the advantages and disadvantages in using DDT in the control of insects is presented. Directions for spraying cattle, ponds, and fields as well as for ridding premises of fleas, bedbugs, lice, ants, and cockroaches are included. DDT is toxic to all higher animals, but its acute toxicity is much less than that of some of the arsenicals and nicotine used commonly as insecticides. DDT in powder form applied to the skin is not toxic, but in oil solutions when absorbed through the skin causes toxic effects. In general, plants show no injury when DDT is applied. Squash, cucumbers, and other cucurbits, however, are injured by DDT used either as a dust or spray.

BRITISH MEDICAL JOURNAL

No. 4457, June 8, 1946

*The importance of autoregulation in nutrition metabolism. S. M. Leitis.—p. 875.

Autoregulation in Nitrogen Metabolism. It has been shown that in autoregulation when there is an increased quantity of nitrogen metabolites in the blood there is a reduction in the disintegration of protein in the tissues. As a result of the surplus production of the hormones of protein metabolism, synthetic processes become active in the nitrogen metabolism. All this leads to a reduction of the increased concentration of nitrogen metabolites in the blood and to the reduction of the azotemia to normal. This new law shows the way for a new method of dietetics and for the functional diagnosis of diseases in which protein metabolism is disturbed.

CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 54, June, 1946

*Oral folic acid therapy in the treatment of pernicious (Addisonian) anemia. J. Kaufmann and P. G. Schwager.—p. 539.
*The role of riboflavin in migraine. C. B. Smith.—p. 589.

Folic Acid in Pernicious Anemia. Folic acid has been found to be effective in treatment of pernicious (Addisonian) anemia. The action of the drug seems to be much the same as liver. Its therapy by oral administration is well tolerated. Prompt improvement needs comparatively large doses, 20 to 40 mg. daily. Maintenance doses seem to be small, 5 to 15 mg. daily. There have been no instances of intolerance or allergic manifestations so far. The proper dietary support may supplement the efficiency of the drug and even perhaps the use of hydrochloric acid aids.

Riboflavin in Migraine. In a group of 15 individuals suffering from simple migraine and four having ophthalmic migraine marked improvement and general well being was shown when 15 mg. of riboflavin per day were given. The dosage was varied after the first several months to suit individual requirements and needs of that particular day. The four cases having ophthalmic migraine were relieved of attacks either dramatically from the start of the therapy or within a few weeks' time. Ten cases with simple migraine obtained a complete cessation of the attacks while three of the remainder were greatly improved.

HOSPITALS

Vol. 20, June, 1946

*Some practical new developments in dietary equipment. M. Gillam.—p. 62.

New Developments in Dietary Equipment. New equipment offered in the institutional field is reflecting the experience gained by manufacturers meeting wartime standards. New sheet aluminum gives a finer surface than old cast aluminum, and an improvement in the alloy results in a harder product which does not dent or gouge easily and has a greater resistance to corrosion. Monel metal is being produced with a new and even brighter finish. New techniques in fabricating and welding stainless steel will result in better products. Mild steel and copper clad varieties of stainless steel utensils for top-stove cooking have been developed to overcome poor heat conduction. Plastics are finding their place in hospital equipment, but breakage and nonsterilizable items indicate a need for further research. Electrically heated hot food storage receptacles are replacing steam tables in some installations. Automatic dispensers are finding their way into large scale operations. New communicating systems, coffee urns with more automatic features, better ventilating systems are among the many new developments.

JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY

Vol. 40, January, 1945

*Food aversions of normal and neurotic males. R. Wallen.—p. 77.

Vol. 41, January, 1946

*An additional study of food aversions. H. C. Gough.—p. 86.
*Security and breast feeding. A. H. Maslow and I. Szilagyi-Kessler.—p. 83.

Food Aversions. The object of this study was to determine whether neurotic males differ from normal males in their food aversions. The control group were recruits from a military training station, and the neurotics were chosen from men discharged for inaptitude. It was found that neurotics had significantly more aversions to food than the controls. Neurotics were particularly averse to grapefruit juice, cabbage, bean soup, and potato soup. Further observations revealed that neurotics are more prone to have unpleasant and disgusting associations to disliked foods than are the controls. Food aversions may be reflections of early experiences in the home. It is suggested that a check list of food aversions could be profitably used in the detection of maladjusted persons. It is rapid in administration and scoring, and does not arouse the suspicions of the interviewee.

In This Changing Attitude Towards Early Postoperative Feeding

During recent years, the recognition of the influence of the nutritional state upon the rate of postsurgical recovery has led to the practice of earlier postoperative feeding. Not only are the higher protein and vitamin requirements thus more completely satisfied, but also strength returns more quickly, making for speedier subjective recovery.

In this plan of rapid postoperative dietary liberalization, breakfast assumes new importance, since a well organized breakfast can make a significant contribution to the daily caloric and nutrient needs. The cereal serving, consisting of cereal, milk and sugar, merits inclusion in the postsurgical breakfast, and may well be the first solid food given the patient. Appetizing and palate tempting, it provides biologically adequate protein, readily utilized caloric food energy, B complex vitamins, and important minerals. Cereals, with the exception of those purposely made different through the inclusion of bran, are chemically and mechanically bland, and are digested virtually in toto. The large number of cereals available, whether ready to eat or to be cooked, insures patient acceptance. The contribution made by the cereal dish consisting of 1 ounce of cereal (whole grain, enriched, or restored to whole grain values of thiamine, niacin, and iron), 4 ounces of milk, and 1 teaspoonful of sugar is indicated by the table of composite averages:

Calories	**202**
Protein	**7.1 Gm.**
Fat	**5.0 Gm.**
Carbohydrate	**33 Gm.**
Calcium	**156 mg.**
Phosphorus	**206 mg.**
Iron	**1.6 mg.**
Thiamine	**0.17 mg.**
Riboflavin	**0.24 mg.**
Niacin	**1.4 mg.**

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

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Additional Study of Food Aversions. A study was made of the food aversions of 254 normal and 79 neurotic male soldiers. Twenty items were used: tea, grapefruit juice, bean soup, potato soup, salmon, beefsteak, veal chops, chicken, fried eggs, cottage cheese, Swiss cheese, Lima beans, cabbage, corn, mushrooms, radishes, tomatoes, cantaloupe, cherries, and pears.

The average number of dislikes for neurotics was 5.14 and for normals 1.23. A greater percentage of neurotics disliked each food when the foods were considered separately. It was found that when the foods were arranged in the order of aversion for each group, neurotics tended to dislike the same foods as normals.

Security and Breast Feeding. It is reported in the literature that there is a positive, straight-line correlation between length of breast feeding in infancy and later psychological security. Assumptions are that: (a) breast feeding is better for the child's security than bottle feeding, and (b) the longer the period of breast feeding (within culturally ordained limits) the greater will be the child's security. Since neither assumption has been proved, neither can be accepted as it stands.

Students in a Brooklyn College psychology class filled out a personality inventory yielding a quantitative estimate of the individual's feelings of conscious psychological security. The same students were asked how they were fed in infancy. Result: highest security score averages were obtained by those who had never been breast-fed and by those who had been breast-fed more than a year. Lowest security score averages were obtained by those who had been fed at the breast for an intermediate period of time.

A rejecting mother would more likely tend to wean her child earlier, to wean it quickly rather than gradually, to make breast feeding unpleasant rather than pleasant, so that the child would find bottle feeding more satisfactory. The rejecting mother, seemingly the most important cause of insecurity, would show her attitude not only during feeding, but during the child's life. Mothers who wish to breast feed their babies and cannot will, out of consequent guilt and love, show extra affection for their babies.

JOURNAL OF NERVOUS AND MENTAL DISEASES

Vol. 103, March, 1946

*Psychogenic vomiting. J. H. Masserman.—p. 224.

Psychogenic Vomiting. Clinically, psychogenic vomiting may take many forms and meanings. Due to relative frequency, four main groups of reactions have been selected for discussion.

Reactive vomiting. Though functional, it is dependent on culturally determined reactions and is not abnormal. In relatively well-integrated persons, this type of psychogenic vomiting readily disappears with the passing of the precipitating circumstances, and rarely needs to cause serious medical concern. Example: a gastronomically sensitive person who thinks he sees a half-eaten worm in his salad may become nauseated and vomit until convinced it is only a piece of spaghetti.

Neurotic vomiting. The emesis is more definitely neurotic in the sense of its recurrent severity, symbolic nature, and disturbing effects on the adequate adaptions of the patient. Example: such cases are very frequent in the feeding disturbances of maladjusted children.

Symptomatic vomiting. The symptom is not the expression of an acute but relatively transient neurotic reaction amenable to comparatively direct therapy; instead, recurrent vomiting may be but one of many manifestations of a deeply-rooted and fixed infantilism.

Psychoses with vomiting. Functional vomiting may accompany acute or chronic psychoses. Anorexia, with or without constipation, dyspepsia, and emesis, is a frequent symptom in depressive states.

Medical therapy varies with individual circumstances. Treatment cannot be divorced from the psychologic aspects of the case. Dry diets, or intravenous feedings, use of tragacanth and bismuth or the barbiturates may inhibit the peripheral mechanisms of vomiting and thus be effective in immediate treatment. The physician should use medical means to get the patient's cooperation, but it is not effective unless the deeper emotional determinant is recognized and corrected.

JOURNAL OF NUTRITION

Vol. 31, June, 1946

*Phosphorus metabolism of preschool children. B. V. McKay, M. F. Clark, F. L. Meyer, and M. L. Hathaway.—p. 657.

*Nitrogen metabolism of preschool children. M. S. Lew, D. D. Clagett, F. L. Meyer, and M. L. Hathaway.—p. 665.

*A study of pyridoxine and pantothenic acid deficiencies in the monkey. K. B. McCall, H. A. Waisman, C. A. Elvehjem, and E. S. Jones.—p. 685.

*Biological value of proteins in relation to the essential amino acids which they contain. III. Comparison of proteins with mixtures of the amino acids. J. R. Murlin, L. E. Edwards, S. Fried, and T. A. Szymanski.—p. 715.

*Thiamine, riboflavin, nicotinic acid, pantothenic acid and ascorbic acid content of restaurant foods. H. P. Sarett, M. J. Bennett, T. R. Riggs, and V. H. Cheldelin.—p. 755.

Phosphorus Metabolism of Children. Phosphorus metabolism was studied in eight preschool children on phosphorus intakes of 896 to 1374 mg. per day or 55–76 mg. per kg. The basal diet was supplemented with ascorbic acid, potassium citrate and orange juice as indicated. None of these supplements caused significant alterations in phosphorus retention although rather wide variations occurred from period to period. This might indicate that other factors than diet are largely responsible for fluctuations in phosphorus retentions.

Nitrogen Metabolism in Children. Nitrogen metabolism was studied in eight preschool children on protein intakes of between 45 and 58 gm. per day. The basal diet was supplemented with ascorbic acid, potassium citrate, and orange juice as indicated. Results indicated that nitrogen retention was not altered by the addition of 100 mg. of ascorbic acid and 3.38 gm. of potassium citrate. The percentage retention of nitrogen was highest in all four subjects tested when an orange juice supplement, equivalent in ascorbic acid and citrate value to the crystalline supplements, was added to the basal diet.

Pyridoxine and Pantothenic Acid Deficiencies in the Monkey. Pyridoxine deficiency in young monkeys resulted when a synthetic diet was fed with all the crystalline vitamin B complex except pyridoxine. The symptoms were lack of growth, ataxia, hypochromic microcytic anemia, mild leucopenia, polychromatophilia, and the appearance of nucleated red blood cells. With the administration of pyridoxine, growth was resumed and the anemia and blood picture improved. Pantothenic acid deficiency syndrome was characterized by lack of growth, ataxia, greying and thinning of the fur, anemia, diarrhea, and cachexia. Incomplete remission of these symptoms occurred on the administration of calcium pantothenate but complete recovery resulted when whole liver substance at a level of 3 per cent of the ration was given.

Proteins and Amino Acids. Ten comparisons were made on human subjects of the proteins of whole egg, yeast, cottonseed meal, corn germ flour, beefsteak and haddock, with mixtures of the essential amino acids, compounded in the proportions in which they occur in the proteins and supplying as much nitrogen as the protein. None of the mixtures were found to possess a biological value as high as that of the protein. The mixtures contained arginine,

ITS PALATABLE TASTE

is Appreciated

Palate appeal in the convalescent surgical diet is of utmost importance in encouraging adequate intake of the nutrients needed for maximum rate of tissue repair. During this period, when the appetite not infrequently lags, convalescence can be unduly prolonged and ultimate return of strength and vigor retarded if anorexia or food aversion complicates the picture.

Through the simple expedient of including the food drink made by mixing Ovaltine with milk in the postoperative and convalescent dietary, the intake of all essential nutrients rises sharply. Delicious and palate tempting, it is enjoyed by all patients, young and old. Its wealth of nutrients is balanced, as indicated by the table of composition, supplying the very substances needed during recovery periods. Three glassfuls daily, contributing significant amounts of basic and auxiliary nutrients, are relished by the patient and regarded as a treat.

THE WANDER COMPANY, 360 N. MICHIGAN AVE., CHICAGO 1, ILL.

Ovaltine

Three servings daily of Ovaltine, each made of ½ oz. of Ovaltine and 8 oz. of whole milk,* provide:

CALORIES	669	VITAMIN A	3000 I.U.
PROTEIN	32.1 Gm.	VITAMIN B_1	1.16 mg.
FAT	31.5 Gm.	RIBOFLAVIN	1.50 mg.
CARBOHYDRATE	64.8 Gm.	NIACIN	6.81 mg.
CALCIUM	1.12 Gm.	VITAMIN C	39.6 mg.
PHOSPHORUS	0.939 Gm.	VITAMIN D	417 I.U.
IRON	12.0 mg.	COPPER	0.50 mg.

*Based on average reported values for milk.

histidine, and lysine in the natural *l* (+) form and as the monohydrochloride salt. All the other acids isoleucine, leucine, methionine, phenylalanine, threonine, tryptophane, and valine were available in sufficient amounts only as the *dl* synthetic products. The conclusion reached was that the use of *dl* synthetic amino acids, even those of the essential group, is nutritionally uneconomical.

Vitamins in Restaurant Foods. Single portions of food served for each meal at three restaurants were analyzed for thiamine, riboflavin, nicotinic acid, pantothenic acid, and ascorbic acid. Although the food served by the three restaurants varied with respect to cost and attractiveness as served, there were no marked differences in the vitamin content. From estimates of daily food intake, it was calculated that riboflavin and nicotinic acid requirements were readily met by varied diets in all three restaurants. Thiamine intake on these diets were equal to the recommended daily allowances, if care was taken in the selection of foods. Judging from the data obtained, ascorbic acid requirements could be maintained only by the inclusion of fresh fruit juices. The vitamins most readily lost in cooking and handling of restaurant foods were thiamine and ascorbic acid.

JOURNAL OF PEDIATRICS

Vol. 28, June, 1946

*Does milk between meals hamper the appetite or food intake of the child. I. J. Walman.—p. 703.

The Child's Appetite with Milk Between Meals. To determine whether any undesirable symptoms of anorexia, gastrointestinal distress, or decreased consumption of food resulted when a child received milk between meals, a carefully controlled study was made over a period of five months. Both pasteurized and homogenized milk were fed. No undesirable symptoms occurred on this regime. A more quantitative dietary intake study was made to determine amounts of food taken spontaneously when milk was given between meals. It was found that amounts taken at meal time were approximately the same in the control week (without milk), as in the period when milk was fed between meals. The added milk proved a true dietary supplement. The evidence found indicates that it is advisable to make available an extra serving whenever there is need for improving a child's nutritional status.

JOURNAL OF SCHOOL HEALTH

Vol. 15, January, 1945

*Changing student food habits through the school program. L. Gold.—p. 7.

Vol. 16, March, 1946

*Principles governing school lunches; a committee report.—p. 75.
*ABC's of school lunch sanitation; a committee report.—p. 79.
*Nutrition; a committee report.—p. 83.

Changing Student Food Habits. The process of changing food habits involves breaking undesirable positive food habits, which are firmly rooted in the psychological behaviour pattern of individuals and in the cultural patterns of their nativity groups. The new habit must then be established. Since the changing of food habits is a two-way process, it is especially difficult because it entails breaking well-established habits, a process more difficult than that of establishing new ones or strengthening poorly developed habits.

In conclusion, it may be observed that the schools are social institutions conducted and supported for the purpose of developing in each generation right attitudes, habits, and knowledge. If adequate nutrition is essential to the well-being of individuals and of society, then it is incumbent upon the schools to contribute to the improvement of food habits.

Principles Governing School Lunches. Nine principles adopted by the Joint Committee of the National Education Association and the American Medical Association at its 1945 meeting in Chicago relate to the need for and place of the school lunch in the school health and general education program, and to the management and administration of the school lunch program.

School Lunch Sanitation. This report is a modification of a statement by the Minnesota State Nutrition Council School Lunch Committee in cooperation with the Divisions of Sanitation and Preventable Diseases, Minnesota Department of Health.

Standards for school lunch programs are suggested by questions relating to the following subjects: worker's health, personal hygiene, food handling, water supply, garbage disposal, dishwashing, general sanitation of the lunchroom and kitchen.

Nutrition. The American School Health Association Committee on Nutrition suggests recommendations regarding school lunch and nutrition programs to be made by the Association's Governing Council to Congress and to the Surgeon General of the U. S. Public Health Service. The committee also lists suggestions relating to nutrition programs which it recommends that the Governing Council go on record as favoring.

THE LANCET

Vol. 250, June 29, 1946

*Nutritional deficiency, painful feet, high blood pressure in Hong Kong. C. F. Harrison.—p. 961.

Nutritional Deficiency and Painful Feet. The outstanding symptom of nutritional deficiency of the prisoners of war in Hong Kong was painful feet. The impression received from studying these patients was one of tension. The relief of pain by calcium given intravenously, nicotinic acid, and amyl nitrite—all vasodilators—suggests that the feet and in some cases the hands were deprived of their normal blood supply. Any measure which improved circulation in the extremities appeared to be beneficial. Massive doses of nicotinic acid were necessary to relieve the pain.

NEW ENGLAND JOURNAL OF MEDICINE

Vol. 234, June 6, 1946

*Fluorine and dental caries. V. A. Gettiny.—p. 757.

Fluorine and Dental Caries. From the very inclusive discussion presented in this article the point is made that fluorine is believed to exert a direct beneficial effect in preventing dental caries. If fluorine is in excess, however, it may have a deleterious effect on the teeth. The susceptibility to fluorosis seems to increase through lack of certain essential nutrients.

NUTRITION REVIEWS

Vol. 4, May, 1946

Nutrition in public health programs.—p. 129.
*Present knowledge of the vitamin B-complex in human nutrition (I).—p. 130.
The vitamin composition of human milk.—p. 134.
*Relative nutritive value of animal and vegetable fats.—p. 140.
*Wartime dental caries incidence.—p. 142.
Improvements in ascorbic acid and thiamine determinations.—p. 148.
The skeletal system of the rat during acute starvation.—p. 152.
A survey of hemoglobin levels in Great Britain in 1943.—p. 154.
*The vitamin D content of human milk.—p. 157.

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Chemistry of the American Medical Association as having clinical value. Thiamine is valuable in prevention of beriberi. The severity of the disease depends upon the restriction of thiamine. There is still question about the quantitive human requirement for thiamine. The U. S. Food and Drug Administration accepts the figure 1 mg. per person per day. The need for thiamine is increased in conditions involving augmented metabolism and in conditions involving faulty assimilation. The recognized allowances are 0.5 mg. per 1000 calories. These allowances provide a fair margin above nutritional deficiency. Ariboflavinosis is difficult to diagnose. Hence, there are conflicting estimates about the incidence of riboflavin deficiency. Also, little data have been presented on which to base the human requirement for riboflavin. The figures as they stand now are 0.6 to 0.7 mg. per 1000 calories. Niacin is the pellagra-preventive factor. The way in which niacin deficiency leads to anemia is not yet understood. An exact figure for niacin requirement has never been adopted, although the allowance originally decided upon was 10 times the thiamine requirement. This ratio has been preserved in a recent revision.

Nutritive Value of Animal and Vegetable Fats. Both animal and vegetable fats are absorbed from the intestinal tract to about the same extent, provided the melting point of the fat is below 50° C. Vitamin A is found only in animal fats to any great extent; vitamin D only in butter and fish liver oils; and vitamin E in seed germ oils. Butter permits a better growth response than other fats, only when the lactose content of the diet is so high that it is detrimental to the animal. Butter has a slight advantage over margarine because of its vitamin D content, but margarine contains vitamin E.

Wartime Teeth. During World War II in Norway there was a noticeable decrease in the number of dental caries in children. This reduction is credited to the fact that less sugar, refined flour, candy, and soft drinks were eaten. In England, the rate of tooth decay decreased because of the interest taken in child nutrition. Milk was available at schools, margarine was fortified, and increased allowances of milk, cod liver oil, and fruit juices were available to pregnant and lactating mothers. Although the total caloric intake was reduced during the war, the diet received through rationing may have been more adequate for the development of teeth. The decrease in refined carbohydrates eaten may also have been a factor in the improvement. This has been a subject of controversy for several years.

Vitamin D in Human Milk. Surveys have been made of women given vitamin D during pregnancy, labor, lactation, and of mothers receiving no vitamin D supplement. Only very slight increase in the vitamin D content of milk was found, even when massive doses were given. Somewhat more vitamin D occurred in the milk if the supplement was given during labor or lactation. There is the same lack of transfer of vitamin D in the cow. Even with large doses of vitamin D, the antirachitic potency of the milk is insufficient to completely prevent rickets. During pregnancy, however, a vitamin D supplement is desirable if both the mother and fetus are to have a normal calcium and phosphorus metabolism.

PSYCHOSOMATIC MEDICINE

Vol. 7, May, 1945

*The new-born as a young mammal with organic capacities, needs, and feelings. L. K. Frank.—p. 169.

Feeding the New-Born. The human infant cannot keep his body temperature stable, has poorly regulated water balance, and cannot maintain a stable blood sugar level. Therefore, he needs close tactual contact, coddling, and frequent, if not continuous, nourishment. Hunger contractions in the stomach of an infant are more vigorous than those in an adult. What excessive crying due to unsatisfied hunger may do to the emotional pattern of the infant varies with the hereditary stability of the individual infant's nervous system; the result may be anger and rage, or fear and withdrawal. Eating then may become an occasion for attention and emotional disturbance instead of a normal, simple, pleasant experience.

REVISTA DE SANIDAD Y ASISTENCIA SOCIAL (VENEZUELA)

Vol. 11, February, 1946

*Some suggestions for the improvement of nutrition in Venezuela. W. Jaffé. —p. 1.

Nutrition and pregnancy. S. E. I. Gonzalez.—p. 15.

Nutrition in the leper colony of Cabo Blanco. J. M. Bengoa.—p. 63.

Suggested Improvement. Numerous studies have demonstrated that the diet of the Venezuelan, particularly among the working classes, is deficient. One of the main causes is the high cost of protective foods. There is a minimum consumption of meat; this has one advantage—arteriosclerosis is very rare. Three ways of improving the diet without increasing costs are suggested: (a) by greater use of highly nutritious but comparatively unfamiliar products; (b) by utilization of the more nutritive forms of familar foods; and (c) by conservation through refrigeration of fruits which are cheap and abundant in season.

Edible yeasts of the genus Torula contain all the essential amino acids. (These yeasts are commercially produced in Jamaica by the West Indies Sugar Company.) Soy beans, peanut flour, sesame seed, and cotton seed are also valuable sources of protein. Unpolished rice rather than the polished variety, and yellow rather than white corn, are recommended. Mangoes, guavas, oranges, and tomatoes are extremely cheap in season and are eaten then in great quantities. The rest of the year hardly any fresh fruit is consumed. There is acute need for facilities for conserving these important sources of vitamin C.

Translator's note: The Spanish word, *alimentación* has been translated consistently as "nutrition," but it actually means "feeding." The Spanish word *nutrición* is the accurate term for our "nutrition," but there seems to be no English word which precisely conveys the meaning of *alimentación* in the titles of the articles.

SOUTHERN MEDICAL JOURNAL

Vol. 39, June, 1946

*The effect of transthoracic vagotomy upon the functions of the stomach and upon the early clinical course of patients with peptic ulcer. K. S. Grimson, H. M. Taylor, J. C. Trent, D. A. Wilson, and H. C. Hill.—p. 460.

*Failure of lipid metabolism: proctologic significance. M. M. Marks.—p. 477.

*Importance of vitamins of the B-complex in clinical medicine. G. A. Goldsmith.—p. 485.

Transthoracic Vagotomy as a Treatment of Patients with Peptic Ulcer. The clinical record is given of 25 patients treated with transthoracic vagotomy for refractory peptic ulcer and a short period of observation of from one to 18 months. It was combined with pyloroplasty or gastrojejunostomy in five patients because of obstruction and retention. Vagotomy decreases the motility of the fasting and of the barium-filled stomach and decreases the volume and acidity of the secretion of the fasting stomach.

Failure of Lipid Metabolism: Proctologic Significance. Acne is common in the age groups of military service, especially in the teens and early twenties. Because of the chronic fatigue of acneic individuals and their difficulty in gaining weight, they over-ingest foods which are rich in lipids such as milk, milk products, chocolate, fried foods, and fat meats. The basal metabolic rates in these persons are usually in the lower brackets of normal or below. Laboratory findings confirm the presence of hypothyroidism. It is believed that the diet offered by the Army and the fatty foods selected by the patient combine in the

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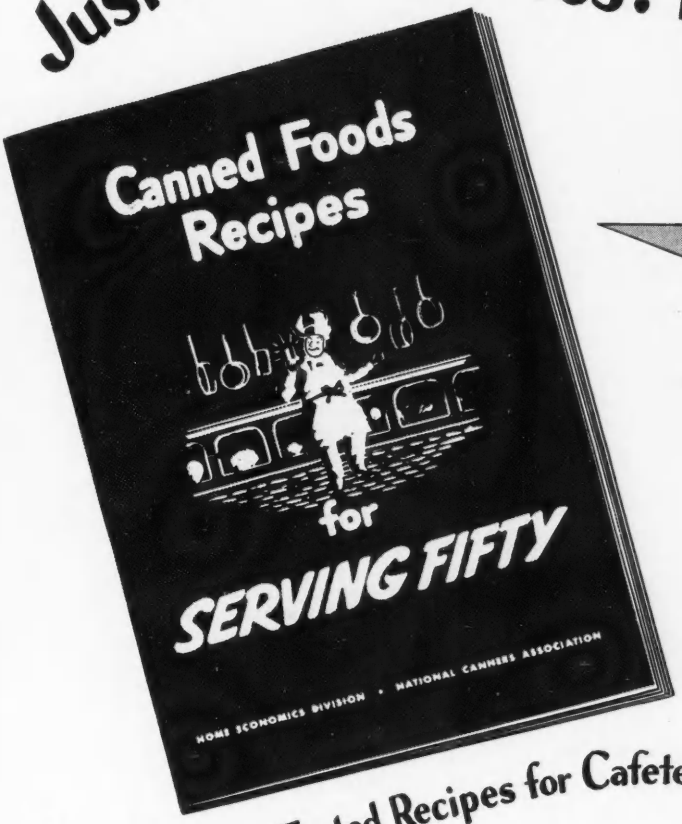

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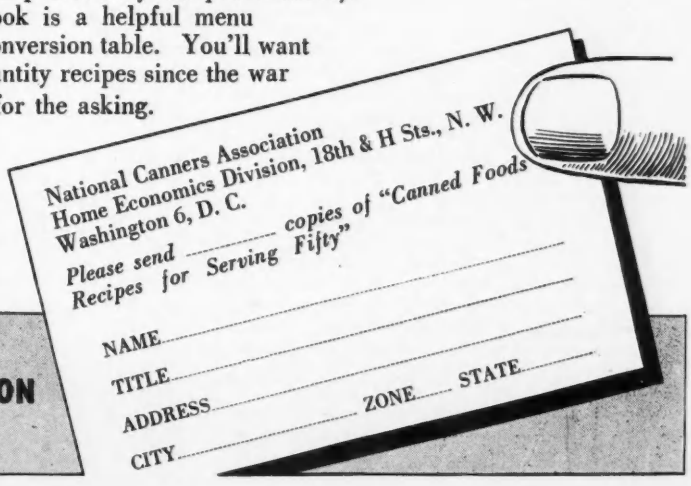

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presence of hypothyroidism to produce the disease, wherein sebaceous material accumulates in the glands of the skin and acts as a foreign body in the development of inflammation. By giving these persons a low-fat diet, thyroid therapy, and adequate suitable surgical intervention, alleviation of the disease has been possible.

Vitamins of the B-Complex. A review and discussion of the history, function, requirements, diagnosis of deficiency, and clinical use of the B-complex vitamins is made. A plea for more precise tests in the study of B-complex in human nutrition is made as present trends in research indicate an increasing interest in intermediary metabolism and in the inter-relationships of vitamins, hormones, and amino acids.

AMERICAN COOKERY

Vol. 51, April, 1946

*The mother of level measurement. F. de N. Schroeder.—p. 40.
*Spotlight on vegetables.—p. 44.

Fannie Farmer. Called the mother of level measurement, Fannie Farmer in 1896 had printed the first *Boston Cooking School Cook Book*. She was the first to tell her students to use the level teaspoon and her greatest aim in cooking was that of accuracy.

Vegetable Cookery. Small quantity recipes are given for carrot custards, baked tomatoes with cheese, baked stuffed onion, beets—Polish style, green and white turnips, golden toasted carrots, cabbage—maitre d'hotel, fresh spinach casserole, candy striped potatoes, cauliflower with egg sauce, and baked vegetable loaf.

BAKER'S HELPER

Vol. 85, June 1, 1946

Varieties of gingerbread, a sugar saver. F. P. Graw.—p. 56.
*Devil's food and peanut butter cakes. H. F. Schudlich.—p. 58.
Bread ingredients, the specific role of each. R. W. Selman.—p. 72.

Vol. 85, June 15, 1946

Baking unusual cookies brings volume sales.—p. 44.
*Frozen dough mysteries debunked. C. C. Swearingen.—p. 45.
*Varieties of gingerbread—a sugar saver. F. P. Graw.—p. 76.

Vol. 85, June 29, 1946

*Methods of control for bakery rodent infestation. E. L. Holmes.—p. 38
Shoo fly pie and apple pan dowdy. H. F. Schudlich.—p. 55.
*Application of energy flour to baking. K. C. Den Dooven.—p. 58.

New Cakes. The new flour is discussed, bringing up such points as its high ash content, and the differences in the protein contents in these strains of wheat. Formulas are given for a devil's food cake and a peanut butter cake using the new flour.

Frozen Dough. It is now possible to produce frozen pies, yeast-raised rolls, coffee cakes, Danish pastries, cookies, yeast and baking powder muffins, biscuits, and similar items. These are so conditioned that they may be placed directly into the oven as they come from the homemaker's refrigerator. To eliminate the proofing stage at time of baking, the product is proofed only approximately one half; then it is placed in the modern dough retarder after garnish or directly into the zero range freezer.

Gingerbread. Recipes are given for American gingerbread, raisin gingerbread, pioneer gingerbread, and butterscotch icing. All of these recipes are economical in the use of sugar.

Rodent Control. One of the biggest enemies of the bakery industry is rodent infestation, although it is not always readily seen, and many bakeries are not aware of this condition. A thorough inspection should be made of the plant to locate avenues of entry. Examinations should be made of cracks in walls, broken basement windows, and unscreened windows—the most common means of entry. To detect the presence of rodents in storage rooms, ultra violet light has been used which analyzes stains that may be caused by rodents. Rodent population may be exterminated by poisoning with baits, by trapping, or by fumigation. While fumigation is the most effective, it is not always practical to fumigate in bakeries. For this reason, the first two methods are most commonly used.

Emergency Flour. The new flour must be handled with care, since it is more perishable. An off flavor will develop if it is stored in a warm humid room of high temperature. No more than a two weeks' supply should be kept on hand. Bread made from the new flour will be a little darker in color, and the loaf will be a little smaller. The flavor is slightly improved and many bakers may find that they will prefer to use the emergency flour after the emergency is over. Because the doughs slacken during fermentation, it is advisable to make the doughs a little stiffer, and the fermentation period should be slightly increased. More pan-proof is needed; the oven temperature should be decreased, and the bread should be baked for a longer period of time. The 80 per cent extraction flour lends itself well to slow mixing. High speed mixing is not advisable because of the danger of overmixing. Useful hints for using this flour in making cakes, sweet doughs, and pie crusts are given.

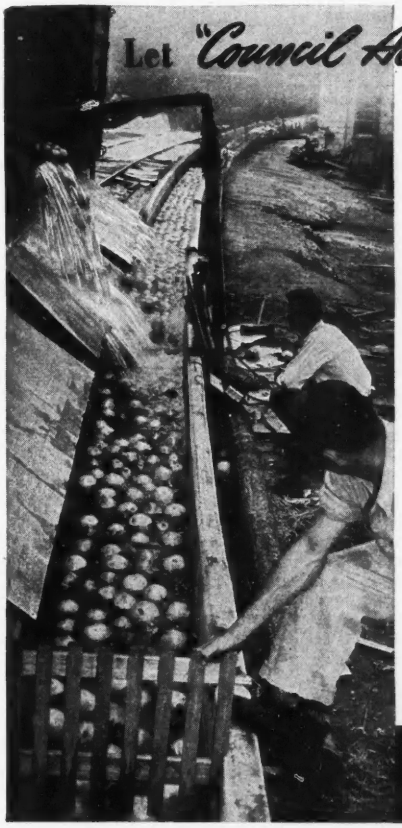
BETTER FOOD

Vol. 51, June, 1946

*Today's food facts.—p. 6.
*That frozen dinner . . . how near is it? H. H. Darby.—p. 22.
New York State's industrial feeding program. D. M. Proud.—p. 38.

NOTE: In this issue, *American Cookery* changes its name to *Better Food*—The Professional Magazine of Food Education and Group Feeding.

Food Facts. Scientists have found that the Brazil nut contains more methionine than any other food recorded. . . . A new rust-proof pot cleaner made of monel, an alloy containing two thirds nickel and one third copper has been developed. It is knitted in one pure roll, is soft and pliant so that it will not injure the user's hands. Monel-O will not rust or corrode under the influence of soap and any other cleaning agent. . . . A drastic change from a very poor diet to a nutritious one may not be entirely beneficial. Although a high protein level is desirable, it creates a deficiency of pyridoxine more rapidly. A high-fat level reduces tooth decay, but also reduces formation of vitamins in the intestinal tract. The over-all effects of a nutritious diet are so much better than those of a poor diet, that these undesirable effects are forgotten. . . . Orange juice is being frozen in Cellophane bags now. The juice is strained and conveyed to a holding tank and automatic filler. The Cellophane bags, on a conveyor, move under the filler, which releases 16 oz. of juice into each bag. The temperature here is −15° F. It requires 20 to 30 min. to go through the freezing tunnel. The open end of the bag is sealed with heat and the bricks are put into the carton in which they are sold. . . . To save bruising peaches, a corrugated paper box with space for 96 peaches has been made. This new container prevents infection of undamaged fruit by damaged fruit. Soft, tree-ripened fruit can be sent to market. . . . Potato bread that resists staleness for three weeks has been developed. A



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potato ferment with a potato flour base having the properties of yeast is used. The culture is used in a 3 or 4 per cent mixture. The bread is at its best a week after baking and retails at 13 cents. . . . Dehydrated wines are cheaper and less bulky and contain all the aroma and flavor of regular wine. To reconstitute it, water or alcohol can be added, or it can be used in the dry form for cooking. . . . Frozen coffee has been developed after five years' work. A paper cup contains 1 oz. of the coffee extract and will make from 3 to 5 cups of coffee, depending upon the size of the cup and the strength. The coffee must be kept in the frozen food compartment of the refrigerator until used. The coffee can be squeezed into a coffee pot and hot water poured over it. Frozen coffee production is limited at present, but soon it will be available for the nation. . . . Soybean milk will become more popular because of the more extensive use of soybeans. It has the same percentage of protein as cow's milk, but does not have its bland flavor or smooth texture. The fat content is just a little below that of cow's milk, and the carbohydrate content is much lower. With the addition of flavoring, it can be used for drinking or without flavoring, it can be used for bakery goods.

Frozen Dinner. National distribution of frozen foods depends on suitable refrigeration. Pies and rolls have been frozen, both cooked and uncooked. Frozen soups are not as good as canned and dehydrated soups. Maxson has frozen complete dinners for fliers on transcontinental flights. However, with the plate dinners, the rate of heat conduction for different foods differs. Some foods are overheated and others undercooked. New types of ovens and heating will be developed to remedy this situation. The day of the entire frozen meal is not too far off, but heating, freezing, and transportation techniques will need improvement.

BUILDINGS AND BUILDING MANAGEMENT

Vol. 46, July, 1946

The labor crisis. W. G. Merritt.—p. 25.
Cleaning in 1946. F. B. Moore.—p. 31.
*Trends in air conditioning. C. B. Gamble.—p. 33.
Problems of personnel. V. Walling.—p. 34.

Air Conditioning. At present, the trend is toward four types of air conditioning equipment. One is the central duct system, where a mixture of outside air and return air is filtered, cooled, and dehumified, or heated and humidified and supplied to the conditioned area through ducts. Another unit is a cabinet type, in which outside and room air are mixed, filtered, cooled, and humidified. The cabinet type is supplied with steam and provides heat and humidity. The third or room unit type, contains water coils, fans, and filters, and the necessary refrigerating equipment in an equipment room, from which cooled water or warm water is supplied to each room. The fourth type is the room unit with outside air or a mixture of outside and return air, so constructed as to induce room air over the cooling and heating coil. The central duct system requires extra space not available in buildings with low ceilings. Less labor is required to operate the unit systems, which provide good heating, are flexible, utilize a minimum of space, and are ideal for buildings with low ceilings, since they require no ducts. The trend appears definitely in favor of the room units served from a central refrigerating and heating system with preconditioned air being delivered to the area under high or low pressure.

CHAIN STORE AGE

Vol. 22, July, 1946

*Problems are opportunities. M. S. Morse.—p. 13.
Making the store manager more important. H. E. Martin.—p. 24.
*How chains are cutting costs.—p. 27.
*New equipment and services.—p. 36.

Problems Are Opportunities. Wartime shortages and problems tended to produce a depressed attitude. This state of mind in the headquarters was reflected in the store personnel of one food chain. Now, at weekly round table discussions, men are encouraged to present their problems and to get help from others. Everyone began to realize that problems could be opportunities. The men decided to handle each problem as it appeared and not to allow problems to overwhelm them. By discussing the pressing difficulty, new and better methods of operation were found. Films showing the abundance of available merchandise were shown. Prizes were awarded for the persons selling the highest percentage of goods. Personnel were teamed to eliminate complications. Today obstacles are evaluated only as opportunities to render better and more efficient service.

Cutting Costs. An inter-office memorandum form has been printed by one organization. The form can be used by all executives and thus large quantities can be printed at low cost. . . . A chain grocery store maintains its own crew of repairmen who have remodeled many of the stores without closing and losing money. . . . A chain drug store keeps a linen record that shows how many uniforms an employee is using. . . . Another chain has made up a daily duty check list for its employees. . . . A variety chain store sells its empty cartons to nearby stores. They are picked up by the employees so there is no labor cost. . . . Another store carefully checks the weight of its freight to be sure there has been no overcharge. All these things require little time, but are great money savers.

New Equipment. A new frozen food display and storage cabinet that allows a dozen persons to serve themselves simultaneously has been manufactured. It is available in two basic units, to which center sections may be added. The unit will fit any wall or aisle and has no lids to raise or slide. . . . Film Productions Company plans to release 24 films during the coming year designed to step up the selling power of the retail sales clerk. The films will cover mental attitude, sales approach, sales presentation, and over-the-counter selling. Each film will be accompanied with text and teaching outlines.

CONSUMER'S GUIDE

Vol. 12, July, 1946

*How it feels to starve.—p. 9.

Starvation. Thirty-six healthy men volunteered to subject themselves to semi-starvation for six months. They starved on a famine diet of 1650 calories, 650 calories more than the people of the starving countries. The men were weighed periodically, and changes in their physical behaviour and social attitude were observed. The diet was then increased to see how long it would take to bring the men back to normal. The results were terrifying when applied to the millions of starving people. There was a marked change in their attitude toward life and in their work ability. The men lost an average of 37 lb. Production capacity was cut 75 per cent. A hungry person's mind is obsessed with food. The men were irritated with even the slightest thing. It took many months to bring the men back to normal, even on a diet of 3000 calories. Remembering this experiment, one is able to understand the situation of the million starving people and what we must do to bring them back to normal before we can live in a peaceful world.

JOURNAL OF HOME ECONOMICS

Vol. 38, June, 1946

Nutritive value of the U. S. food supply. F. Clark and J. B. McCay.—p. 333.
*Status of teachers and cafeteria managers. M. M. Harris and M. S. Ehlers.—p. 338.

Begin with a better breakfast

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*Training the HDA. B. Billings, K. VanAken Burns, and M. Cresswell.—p. 341.
The AHEA saga—part III. K. E. Baldwin.—p. 343.
*Polyphosphates as aid in home jellymaking. G. L. Baker and G. M. Gilligan.—p. 348.
*The new flour: baking qualities. M. T. Swickard.—p. 353.

Teachers and Cafeteria Managers. The combined position of teacher and cafeteria manager requires a bachelor's degree, but only one third of the cases require this for the cafeteria manager. An institution management major is necessary more frequently in the case of teacher-manager position than for the manager's job alone. Experience is necessary for cafeteria managers in 61 per cent of the schools, for 54 per cent of the teacher-managers, and for 43 per cent of the teachers. Teachers are better paid than cafeteria managers and a little better paid than teacher-managers. Annual increases are larger and more frequent for teachers and teacher-managers than for managers. Almost all teachers and teacher-managers are under contract. One half of the cafeteria managers are under contract. Only 65 per cent of the cafeteria managers are covered by retirement plans, while the other two positions are well covered. Michigan provides larger annual increases than Ohio for its home economics teachers. More cafeteria managers in Ohio have a bachelor's degree than those in Michigan. Annual increases for the managers are greater in Michigan. The number of school cafeterias is increasing, making the demand for teacher-managers and cafeteria managers greater. If this demand is to be met, the job must be made more attractive through better salaries, promotion plans, and rewards for advanced study.

HDA Training. Questionnaires were sent to state home demonstration leaders about their pre-service training, the induction training, and in-service training. Opinions were received from 46 state leaders. Seventeen states offer a curriculum for prospective home demonstration agents at state institutions. Forty-six of the leaders recommend an elective course in adult education. Others want more practical courses. Girls interested in demonstration should be given jobs as paid assistants in the summers. Visits from supervisors are used most frequently as means of giving the training. Other training methods are schools or conferences, a training period in the state office, apprenticeship with an experienced agent, and visits from specialists. Inadequate college training was reported from 42 to 74 per cent of the leaders. More training is needed in extension methods and organization, English, business administration, home economics, economics, agriculture, sociology, and education. Sabbatical leaves should be provided. A short course taken at a college in the region in which the agent works is preferred to courses given outside the region. No plan has been set up for training agents to become supervisors or specialists. The job-training courses need to be extended to more leaders. Most of the leaders feel that various phases of extension work could be better correlated.

Home Jellymaking. Polyphosphates have been found valuable in the extraction of fruit juices for home jellymaking. Between one half and 1 level teaspoon of the polyphosphate per 2 cups of prepared fruit must be used. With one half teaspoon polyphosphate, 1 tablespoon of lemon juice should be used to counteract the neutralizing effect of the polyphosphate. The cost of 1 teaspoon of the polyphosphate is not more than 0.3 of a cent. Quick-boil procedures can be developed through the use of polyphosphates if their neutralizing effect is counteracted. The pectic quality of the fruit juice will be increased, so the relative viscosity will be 12 per cent or more. A viscosity of 12 to 25 per cent is right for the quick-boil jelly. Juices with viscosity higher than 25 per cent must be diluted with water. The natural pectins in certain fruits are sufficient to support the sugar required for a quick-boil jelly without the addition of commercial pectin preparations.

Baking Qualities of the New Flour. All biscuits were slightly more moist than the control biscuits. Laboratory-milled flour yielded best results when the liquid was decreased. Best biscuits with the hard wheat were obtained by using the standard recipe. The color was slightly darker, and the wheaty and rich flavor was agreeable. Cake batters were slightly thinner and darker, but decreasing the liquid was not desirable because the cakes were crumbly and dry. With the hard wheat, the best cakes were also made when the standard recipe was used. With the soft wheat, 15 per cent more mixing, or 260 to 300 strokes was needed. The cakes were equal to or greater in volume than cakes made with regular flour. The color was objectionable to some judges, but enjoyed by others. In pastry, with the soft wheat flours, liquid was reduced. Color and flavor were deeper, but were liked. Results with yeast rolls were satisfactory. In muffins, there was no increase in coarseness or tunneling, but there was a slight increase in moisture. In general, products made from 80 per cent extraction flour were more tender and moist than those made with low extraction flours.

HORWATH HOTEL ACCOUNTANT

Vol. 26, May, 1946

*The trend of business in hotels.—p. 3.
Control of food cost in industrial feeding. H. W. Espersen.—p. 5.

Vol. 26, June, 1946

The trend of business in hotels.—p. 3.

Trend of Business. Some significant facts were seen in the trend of business for March. The average for total sales was lower in March than in February. The country-wide occupancy again reached the high of 95 per cent achieved last October. Even though there were high occupancies, the increases in room sales was less marked in March than in February, because the majority of the places showed a smaller rise in the average rent per room occupied. The restaurant business continued to show big increases.

Trend of Business in Hotels. The increase of sales in April over March were either the same or smaller. Hotels classified as "All Others" increased sales by 18 per cent. Chicago sales increased 20 per cent and Cleveland, 19 per cent. New York City fell behind March on all points. The decline of 1 per cent in total sales and 4 per cent in restaurant sales on the Pacific Coast means that the big gains of the war years cannot be matched now. The highest occupancy for April was 97 per cent for Cleveland, and the lowest was 91 per cent for Philadelphia. The country-wide average was 94 per cent.

HOTEL MANAGEMENT

Vol. 49, May, 1946

*Good food hints. L. P. De Gouy.—p. 20.
Profit or loss. L. Blazer.—p. 37.
Laying out a large kitchen. H. P. Bock.—p. 44.
*Fifty-three pointers for better dishwashing.—p. 50.
Precautions you should take to protect your place against bogus check passers. W. O. Voegele.—p. 60.

Vol. 49, June, 1946

*Profit or loss. L. Blazer.—p. 31.
Basic principles of quantity cookery. A. Easton.—p. 38.
Fabulous food facts. B. Ritter.—p. 43.

Good Food Hints. Storage, thawing, and cooking of frozen foods are discussed; also, the uses of dried fruits. The recipe for frying avocados suggests their rise as a garnish for roasted poultry, beef, pork, or mutton. Recipes for jellied soups and their correct service are included.

Better Dishwashing. This article includes pointers for dishwashing in relation to the soiled dish table, unloading

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facilities, the clean dish storage, the dish pantry, organizing the help, and operating and maintaining the dishwashing equipment properly.

Profit or Loss. This article gives interesting facts about the running of a hotel while employees were on strike. Maids, housemen, bellboys, elevator operators, and laundry workers walked out and left the hotel in a state of impotency. The hotel functioned as best as it could until the workers returned to their posts.

INSTITUTIONS

Vol. 18, April, 1946

*Dishwashing "magic" made easy by panel of experts.—p. 1.
Check list to test efficiency of dishwashing.—p. 1.
*War emergency extinguishers need renewing.—p. 1.
*What you can build, how.—p. 1.
*Departmentalized frozen food lockers.—p. 4.
*Grill with temperature control.—p. 4.
*Steam baskets.—p. 5.
*Cooking fat purifier.—p. 6.
Surroundings, cleanliness vital in plant cafeterias.—p. 11.
*Tells ways to use current surplus of chickens and turkeys.—p. 16.
*Food shortage poses problems.—p. 17.
*Army points way to food conservation in fight on famine.—p. 20.
*Ice cream freezer.—p. 26.
Quality feeding in quantity.—p. 52.

Vol. 18, June, 1946

*Huge yearly fund will be spent for food service items.—p. 1.
Freezing ups efficiency.—p. 16.
Potatoes pinch-hit for wheat on home front in famine war.—p. 35.
*Tells how to control cost for quantity feeding operations.—p. 48.
*Training for service on rails.—p. 69.

Dishwashing Made Easy. Good dishwasing is the result of utilizing modern equipment, adopting proper procedure, using an adequate amount of hot water with a satisfactory detergent, and employing trained personnel. There is a comprehensive discussion of sanitation, one of the most important phases of dishwashing.

War Emergency Fire Extinguishers. Many of the fire extinguishers that could not be replaced during the war now need to be renewed, since standard equipment is returning to the market.

Building Under the Veterans' Housing Program. The Civilian Production Administration has limited certain types of alteration, building, and repair. For hotels, restaurants, schools, hospitals, resorts, and charitable institutions, the maximum is $1,000. This limit does not hold, however, if the specific authorization is made by the CPA. There are certain categories such as the installing of dishwashing equipment which will be allowed without limit of expenditure.

Departmentalized Frozen Food Lockers. New sectional lockers accessible without entering a room chilled to zero have been devised with drawers for different varieties of food.

Grill with Temperature Control. A thermostatically controlled gas grill has been developed which is useful in the grilling of choice steaks, hamburgers, pancakes, eggs, and bacon.

Steam Baskets. Seamless stainless steel steam baskets with rounded corners are being made which should be economical both in cleaning and in maintenance.

Cooking Fat Purifier. A new cabinet and fat purifier has been designed which filters and purifies cooking fats and oils, reducing acidity and removing burned pieces, sludge, or other contamination.

Chicken and Turkey. The selection of poultry, methods of defrosting, and the length of time it may be kept safely are given.

Food Shortage Problems. The butter production is about half of 1941, with most of it being sold on the black market. Strawberries have a large crop, while the supply of macaroni products is low. Airborne foods have been tested with the shipping of fresh fruit from the ranches of California to the East Coast. The dehydrating, canning, and frozen food industries are bringing forth new products.

The Army Conservation Program. The Army has found that it saves flour, sugar, and fat by serving bread instead of rolls or biscuits. By serving fried eggs, instead of hot cakes, it will save 408,000 lb. of flour a week.

Ice Cream Freezer. A new ice cream freezer is being put on the market that will mix, freeze, harden, and dispense the ice cream.

School Lunch Program. A bill has been signed by the President, authorizing the expenditure of federal funds for a school lunch program. An appropriation of $75,000,000 has been made. The program will be administered by the Department of Agriculture. Each state will receive its share of the money, according to the number of schools and school enrollment. Funds will be spent for equipment used in storing, preparation, and serving of the food. None will go for additions to the feeding space, new floors, roofing, or similar improvements.

Cost Control. Because of their higher food costs per dollar sale, industrial feeding operations must exercise great prudence in food purchased, received, and issued. Purchase of food is the first important consideration. Daily records should be kept of food purchased, sold, waste, trim, popularity, and cost. The receiving clerk should be an honest and reliable person. No food should be issued without the proper requisition. Without proper records of food issued, it is not possible to keep accurate daily cost records. Perpetual inventory is not necessary, if there is strict control over the storeroom. A record of the purchase orders, receiving records, requisition, and food sales make it possible to have a good food cost report.

Rail Food Training. A new training program has been established by the Dining Service Department of the Illinois Central Railroad. The program is carried out in quarters exactly like those found on the regular cars. Films, lectures, and demonstrations are used. The workers learn through both actual work under inspectors and classroom lectures. The best in service, food, and comfort must be given to the guest.

THE NATION'S SCHOOLS

Vol. 37, April 1946

*Better plant practices preserve those fluorescents.—p. 62.
Breakfast habits can be improved. I. B Bennett and J. Swartz.—p. 64.
*Food for thought.—p. 66.

Fluorescent Lighting. Avoid switching fluorescent lights on and off unnecessarily to increase their life. When tubes are turned on, the electrons eat away at the electrodes until the light-producing arc is struck. Sooner or later the electrodes will be eaten entirely away and the tube will not light.

Improved Breakfast Habits. The Corona-Flushing Health Center of the city Department of Health, New York, cooperated with the city Board of Education in a nutrition education project to improve the eating habits of the Flushing High School students.

Food for Thought. A booklet, *A Source Unit on Nutrition for Schools in New Jersey*, has been published to teach nutrition in the fourth, fifth, and sixth grades of elementary schools. It also gives information aids for teachers and activities for the pupils. It lists references and visual education aids which will be helpful in the nutrition teaching.

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PERSONNEL JOURNAL

Vol. 25, May 1946

*Planned development of supervisors. P. Carroll —p. 2.
Emotional factors in safety. H. R. Bixler.—p. 9.
Eastman Kodak wage-dividend plan.—p. 15.
*Job analysis, description and classification. R. F. Wallace.—p. 18.
Job analysis: to buy or not to buy? R. L. Howard.—p. 31.
Trends in collective bargaining. S. T. Williamson and H. Harris.—p. 38.
Salary and wage administration. R. W. Ells.—p. 39.

Development of Supervisors. In order to develop a plan for training supervisors, we must first thoroughly understand what is expected of the supervisor and what the policies are to be in his area of operation. The supervisor must be a part of management or his efforts will not be effective. Second, we must have job specifications outlining the necessary qualifications of the supervisor. Formerly, it was thought that the ability to perform the work to be done was the important qualification, but according to experts, technical ability is only 15 per cent of the total job requirements of a good supervisor. Third, we must have some means of testing the individual who is attempting to meet the specifications. Leadership qualities are very important today. Skilled supervisors with proper training can prevent complaints from becoming grievances. Fourth, we must have satisfactory ways for overcoming the deficiencies in the candidates. Fifth, we must have a definite program for developing the future supervisors through a proper apprenticeship. Sixth, we should remember that there is a considerable likelihood that some of those being selected and developed will ultimately be promoted to higher executive positions. This being the case it will be necessary that some of the candidates be selected for capabilities which will enable them to progress beyond the first stages of supervision.

Job Analysis. The study of jobs is basic in any sound personnel program, for this study lays the ground work for determining the appropriate sources of workers, for selection, training, rating, compensation, transfer, promotion, and other personnel functions. One of the primary objectives of job evaluation is the discovery of job requirements for the purpose of establishing equitable salary and wage scales. Job rating does not in itself establish rates, but merely establishes the relationships between jobs, forming a logical basis for determination of wage differentials. A job analysis provides the basis for intelligent selection, for designing the training program, for appraising the working conditions, and for systematic wage determination. A job classification program requires the participation of the employees, their supervisors, the job analysis, and the management. There are several methods used to obtain the information required for the job study program. The best method is the personal interview and actual observation of the job by the job analyst. Another method may be employed by using the questionnaire form. This is given to the workers and checked by the foreman or supervisor. This latter method is good only for office, clerical, and technical positions, and useless for craft and manual jobs. Time and motion studies may be of supplementary value in analyzing repetitious work where more effective methods of performance may come to light. It should be remembered that it is necessary to standardize an operation before it is timed. Graphic charts are particularly valuable in giving a clear and detailed picture of the component elements of a job. For further refinement, the technique of motion study or the use of motion pictures for more accurate studies, may be employed. It is important to remember that job analysis and classification is a continuous process and must be kept up-to-date constantly in order to be of any value.

RESTAURANT MANAGEMENT

Vol. 58, May, 1946

How home-baked pastries are spelling luncheonette profits for us. L. Edson.—p. 36.
*How NRA's new food research department will help members. P. P. Logan.—p. 38.
*Feeding 3000 office workers in 90 minutes. E. Haley.—p. 46.
Sandwich fillings and garnishes. L. P. DeGouy.—p. 49.

Vol. 58, June, 1946

*Basic principles of quantity cookery. A. Easton.—p. 34.
Opportunity for more stable employment. T. O. Yntema.—p. 38.
*How to purchase and prepare turkey. S. Mallick.—p. 43.
* A program that has protected a typical city's health for eight years. R. B. Eskil.—p. 44.
*Ridding restaurants of insect pests. H. P. Quadland.—p. 52.

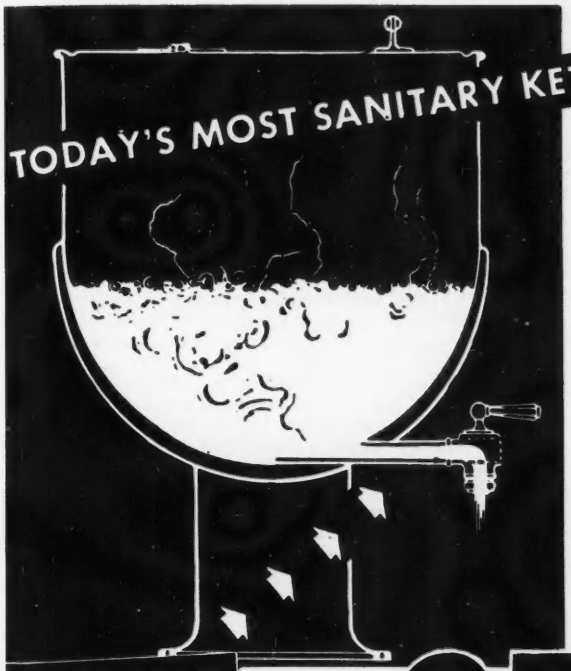
NRA's Research Department. The National Restaurant Association has developed a research department to inform its members of the latest developments in the food industry. Some of the things on which they are working are frozen foods, dehydrated foods, the cooking of meat, and the development of better fresh produce.

Feeding Office Workers. By efficiency and speed 3000 office workers are served in 90 minutes. Many new ideas are included for ways of speeding up cafeteria service. For example, straws for use in the milk bottle instead of glasses saved about one half on the amount of dishwashing done. The cafeteria features good quality food at low prices, breaking even without profit or loss.

Principles of Quantity Cookery. Entrées may include meat, fish, poultry, cheese, eggs, or vegetables. During the past few years, many lunch hours have been reduced from an hour or more to half an hour or less, resulting in changes of the food ordered. By emphasizing quick service of light entrées, average check and profit may increase. Employees should be trained to suggest these dishes on the menu. Where there is a demand for hot meals, an electric grill could be set up to meet this change. Light entrées can often be sold at a greater margin of profit than heavy dishes or sandwiches. The author gives, in great detail, suggestions for light entrées, such as cheese, egg and vegetable, fish, beef, lamb, pork, ham and sausage, poultry, veal, and miscellaneous entrées.

Purchase and Preparation of Turkey. The quantity yield and the quality of the flesh must be borne in mind. The higher the grade, the more flesh there is in proportion to bone. The article explains in detail the points to look for in buying turkey. Suggestions are given for stuffing and trussing turkey, for roasting turkey, and for interesting ways to prepare it, which will be profitable to the restaurant.

City Health Program. Flint, Michigan, has not had any mass food poisoning for eight years. It was the first city in the country to make attendance at a sanitation course a requirement for receiving a food handler's permit. The course consists of four lectures and every food handler must attend all four sessions before he can be issued a permanent work permit. The first lecture discusses harmful bacteria, the speed of breeding, and their communicable relationships. The second is on the importance and methods of sanitary dishwashing. The third lecture shows how to protect food from matter dropped by rats, mice, and insects. The fourth lecture is on personal cleanliness and stresses washing the hands after using the toilet and before touching food. Visual teaching aids are used with the lectures, including demonstrations of proper methods and timely moving pictures. The public is becoming increasingly aware of the importance of the sanitary handling of food, and the restaurant operator should participate in the health programs.



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WHAT'S NEW IN HOME ECONOMICS

Vol. 10, June, 1946

Food marches on. D. E. Shank.—p. 37.
Grain products. D. E. Shank.—p. 38.
The vegetable, fruit picture. D. E. Shank.—p. 39.
The outlook for meat, poultry, eggs, fish. D. E. Shank.—p. 40.
*News on dairy products, on fats and oils. D. E. Shank.—p. 42.
*And so, another lunchroom was started. W. N. H. Davidson.—p. 65.
Highest Navy civilian honor is awarded Ina S. Lindman.—p. 106.

Dairy Products, Fats, and Oils. Production of milk, although high, will not be as high as last year because of grain shortages. Cream supplies will be greater and ice cream supplies will be much the same as in 1945. There will be less cheese and less butter this year than previously. Experiments are being made on the freezing of cream as a method of preservation. A new type aluminum foil butter wrapper is being tested which shows less loss of weight in storage. There will continue to be a shortage of margarine, as well as of vegetable oils. Lard production will be higher as well as the demand. A new plastic margarine container is being tested for use in mixing the coloring of the margarine. Olive oil is being imported from Greece for the first time since the war began.

Starting a Lunchroom. A country school of 42 students needed a lunchroom. To begin the project, a box lunch was held and donations received which netted $200, most of which was spent for concrete to cover the spring. The actual work was done by school committeemen and the larger children. Equipment consisting of a three-compartment sink and a range was purchased with what remained of the money. Odds and ends of various patterns of silver and glassware were obtained from a nearby college. Lunches are paid for in money, in produce, or in work. The principal brings fresh foods from a nearby town, as well as fresh milk three days a week.

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List of Exhibitors, 29th Annual Meeting and Exhibit, American Dietetic Association, October 14–18, 1946

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F. A. Davis Company, Philadelphia
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Economics Laboratory, Inc., St. Paul
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Chr. Hansen's Laboratory, Inc., Little Falls, New York
Hawaiian Pineapple Company, San Francisco
H. J. Heinz Company, Pittsburgh
Hilker & Bletsch Company, Chicago
Institutions Magazine, Chicago
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Kraft Food Company, Chicago
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Savory Equipment, Inc., Newark
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John Sexton & Co., Chicago
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Standard Brands, Inc., New York
Swift & Company, Chicago
Sunway Fruit Products, Chicago
John Van Range Company, Cincinnati
Wesson Oil & Snowdrift Sales Company, New York
John Wiley & Sons, Inc., New York
Wisconsin Alumni Research Foundation, Madison, Wisconsin
Wyandotte Chemicals Corporation, Wyandotte, Michigan

Protein as a Therapeutic Factor In Infectious Disease

In the recent past, increasing attention has been called to the influence of severe infections upon protein metabolism and the profound destruction of tissue and serum protein which occurs in these states.[1, 2]

In many instances, prompt control of infection by sulfonamides or penicillin is not followed by the desired degree of systemic improvement. Instead, protracted, stormy convalescence supervenes. A factor which is often responsible for delayed recovery is known to be the intense protein depletion which not only accompanies but also follows in the wake of infectious disease. Not infrequently, recovery can be sharply hastened by correction of existing nutritional deficiencies, foremost among them, protein deficiency. A protein intake, adequate both qualitatively and quantitatively, thus gains increasing significance as an integral part of therapy whenever the condition under treatment is known to lead to increased nitrogen excretion.

Among the protein foods of man meat ranks high, not only because it is rich in complete, biologically adequate protein, but also because its palatability and the many attractive ways it can be prepared make it acceptable to most patients.

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1 Tillett, W. S., Cambier, M. J., and McCormack, J. E.: The Treatment of Lobar Pneumonia and Pneumococcal Empyema with Penicillin, Bull. New York Acad. Med. *20*:142, March, 1944.

2 Armstrong, S. H., Jr.; England, A. C., Jr.; Favour, C. B., and Scheinberg, I. H.: Anemia and Hypoproteinemia Complicating Severe Protracted Pneumonia: Treatment with Penicillin—Role of Specific Supportive Therapy in Recovery, J.A.M.A. *127*:303 (Feb. 10) 1945.

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News Notes

Formation of Group to Study History of Dietetics. Our present teachings and knowledge of nutrition and dietetics are the result of the development of centuries. This field has a rich historical background and lore, but comparatively little of this historical material has been gathered together. A number of dietitians have as a hobby the collection of such material. So that those of like interests may have an opportunity to know each other more intimately and to share in their historical researches, there will be a meeting of this group during A. D. A. convention in October. The time and place of this meeting will be found in the tentative program appearing on pages 792, 794, and 796 of this issue of the JOURNAL. If you are interested in working toward the collection of material on the history of nutrition and dietetics, come to this meeting.

Ruth Blair Honored by Borden Award. The 1946 Borden Award has been presented to Dr. Ruth Blair, head of the Department of Economics, University of Colorado, Boulder. The award, which carried with it $1000 in cash and a gold medal, was presented to Dr. Blair at the American Home Economics Association convention held in Cleveland, June 24–27. This honor was given in recognition of Dr. Blair's work with underprivileged children. The research work for which she received the award was done at the University of Chicago and was concerned with the demonstration of the quantitative amounts of milk, cereals, fruits, vegetables, and proteins needed to accelerate the growth of underpriviledged children. The results of this research were published as two papers: ROBERTS, L. J., BLAIR, R., AND GREIDER, M. J.: Results of providing a liberally adequate diet to children in an institution. I. Acceptance of food and changes in the adequacy of diets consumed. J. Pediat. 27: 393, 1945. BLAIR, R., ROBERTS, L. J., AND GREIDER, M. J.: II. Growth in weight and height. J. Pediat. 27: 410, 1945.

An Institute of Nutrition and Food Technology has recently been established at Ohio State University, including all University departments offering work in that area. Through the Institute, advanced students may avail themselves of an integrated instructional program. In addition, cooperative research in nutrition and food technology will be promoted. The facilities of the Experiment Station and the University will be mobilized in a coordinated program of education and research. T. S. Sutton, Professor of Animal Husbandry, has been appointed director of the Institute.

Graduation Exercises. In July, graduation exercises were held for 31 student dietitians who had completed approved hospital training courses. On July 12, in Rochester, Minnesota, 19 student dietitians received certificates of completion of the *St. Marys Hospital* approved course in hospital dietetics. Dr. Charlotte Young of Cornell University addressed the graduates, and Dr. Russell M. Wilder of the Mayo Clinics conferred the certificates. Girls from 17 colleges and universities, representing 13 states, were numbered among the graduates.

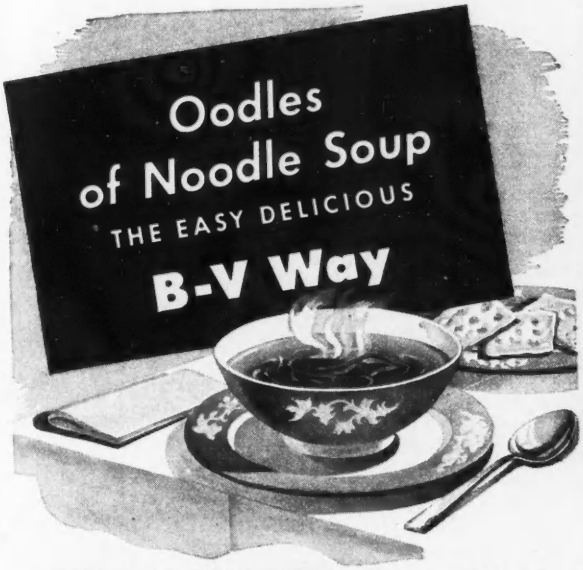
They are: Norma Bausch, Ohio State University; Agnes Brungardt, Marymount College, Salina, Kansas; Charlotte Cone, University of Wisconsin; Grace Clougherty, Seton Hill College, Greensburg, Pennsylvania; Margaret Haring, Webster College, Webster Groves, Missouri; Mary Heltzel, St. Joseph's College, Emmitsburg, Maryland; Shirley Henneman, Iowa State College; Rosejoan Kisling, Fontbonne College, St. Louis; Rose Messina, Florida State College for Women; Margaret McDermott, Marywood College, Scranton, Pennsylvania; Nancy McGill, St. Scholastica, Atchison, Kansas; Mary Nelis, Siena Heights College, Adrian, Michigan; Donna Oeffling, College of St. Benedict, St. Joseph, Minnesota; Frances Olson, Iowa State College; Dorothy Redford, University of Utah, Salt Lake City; Virginia Smith, Iowa State College; Rita Spahn, Clark College, Dubuque, Iowa; Mary Whetzell, Marygrove College, Detroit; and Dorothy Wilson, Nazareth College, Battle Creek, Michigan.

At the *Cook County School of Nursing*, 12 student dietitians were honored by a graduation program on July 24. The theme of the program was air transportation, and included speeches titled: "Charting the Course," by Helen Pilcher, assistant director, Dietary Department, Cook County School of Nursing; "Ceiling Unlimited," by Graham Penfield, president of the Board of Directors, Cook County School of Nursing; "The Takeoff," by Jean Evans, president, Junior Student Dietitians; and "Solo Flight," by Mary Lucy Baynes, vice-president of the Senior Student Dietitians. Certificates and pins were presented by Millie E. Kalsem, director of the Dietary Department of Cook County School of Nursing and chief executive dietitian, Cook County Holpital.

The list of graduates includes: Charmian Elaine Aeby, Rosary College; Mary Lucy Baynes, Salem College; Dorothy Phyllis Camp, Louisiana State University; Avis June Flack, Purdue University; Miharu Kawaguchi, Brigham Young University; Anna Marie Miller, Montana State College; Mrs. Marybelle McDonald Opfer, Kansas State College; Mary Alice Streator, Kansas State College; Gayle Arlene Tammel, Iowa State College; Betty K. Totland, University of Washington; Bonnie Audrey Turner, Mundelein College; Marjorie Dodge Wainwright, Framingham College.

University Hospitals Enroll 18 Student Dietitians. The 1947 class of student dietitians at University Hospitals, Cleveland, has now been completed, with the April group of four being augmented by 14 students who began their work in July. Graduates of 14 colleges and universities making up this class are now proudly wearing the blue arm badges of the student dietetian on their white uniforms.

Fortieth Anniversary of Food and Drugs Act. To commemorate the original enactment on June 25, 1906, of the Federal Food and Drugs Act, a commemorative meeting



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B-V NOODLE SOUP—QUANTITY

INGREDIENTS	6 SERVINGS	25 SERVINGS	100 SERVINGS
Noodles, broken..	¾ cup	6 oz. (3 cups)	1½ lb.
Margarine.....	3 tbsp.	¾ cup	1½ lb.
Boiling water.....	6 cups	6 qts.	6 gal.
Wilson's B-V.....	3 tsp.	3 oz. (4 tbsp.)	12 oz. (1 cup)
Volume.....	6 cups	6 qts.	6 gal.

Add noodles and margarine to boiling water and simmer, covered, until tender. Add B-V which has been dissolved in a small amount of the hot cooking liquid. Add salt, if desired, to suit taste. Approximate cost per serving: 2 cents.

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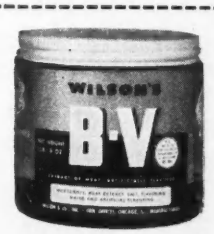

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was held in New York City, June 25. Four members representing the A. D. A. attended: Alta B. Atkinson, president-elect of the New York State Dietetic Association; Lena F. Cooper, former president of the A. D. A.; Mrs. Mary P. Bloetjes, chief dietitian, Hospital of Joint Diseases, Paterson, N. J.; and Mrs. Mary P. Huddleson, former editor of the JOURNAL.

Helen T. Parsons has recently been honored by appointment as associate editor of the *Journal of Nutrition*. Dr. Parsons, an active A. D. A. member, is professor of nutrition in the Department of Home Economics at the University of Wisconsin.

The Chicago Home Economics in Business Group has issued its yearly report, including a list of officers. Mary Lowell Schwin, an A. D. A. member, is chairman for the coming year. During the last year nine monthly meetings were held with an average attendance of 150. One of the outstanding activities of this organization, in 1945–46, was along guidance lines. A total of 58 schools with attendance of 6951 students enjoyed vocational guidance talks by members. In addition, the chapter's placement service placed 120 home economists in positions, 75 of which were in Chicago.

Second Class in Mess Administration for Army Dietitians. Capt. Nell Wickliffe, chief dietitian at Brooke General Hospital, Ft. Sam Houston, Texas, and director of the Mess Administration School, has announced that the second class in advance instruction in mess administration for graduate dietitians was opened on July 15 at Brooke Army Medical Center. The course covers every phase of mess administration for dietitians, and instructors include specialists in their various fields. The teaching dietitian is Capt. Miriam Perry. Twelve Army dietitians attended the course.

American Hospital Association Meeting. The 48th Annual Convention of the American Hospital Association will be held in Philadelphia, September 30–October 3. Topics to be discussed include: integration of services; influences on general hospitals; sociological aspects of hospital planning; administrative experiences in hospital planning and licensing; and financing hospital care. Other subjects to be covered will be personnel supply and salary trends; relationship with employee organizations and with the medical and nursing staffs; trends in nursing and educational responsibilities of hospitals; student nurse recruitment; surveying costs in schools of nursing and how to meet increased costs of nursing service; practical nursing in hospitals; and the American Hospital Retirement Plan. More than 215 manufacturers and suppliers of hospital equipment are planning exhibits and displays to be set up at the Philadelphia Convention Hall, and a number of educational and scientific exhibits will be presented by organizations and associations affiliated with hospital administration.

American College of Surgeons Clinical Congress. The 32nd Clinical Congress of the American College of Surgeons, originally scheduled for New York, September 9–13, has been postponed because of overlapping with the United Nations Assembly. Instead, the meeting will be held in Cleveland with headquarters at the Cleveland Public Auditorium, December 16–20.

New Products Publication. A new 32-page publication titled *New Products and Services* has made its appearance. Published by the New York *Journal of Commerce*, it will include announcements of new peacetime products. Frozen foods developments will be covered as well as new equipment of all kinds.

C. Frances MacKinnon, consultant in nutrition, Children's Bureau, U. S. Department of Labor, and active A. D. A. member, was honored by appointment to act as delegate for the Bureau to the First National Congress on Health and Welfare in Mexico City held during August. Following the Congress, which lasted two weeks, Miss MacKinnon went on to Guatemala City.

Annual Report of Christ Hospital, Cincinnati. The 56th annual report of the Elizabeth Gamble Deaconess Home Association and the Christ Hospital, Cincinnati, for 1945–46 has been issued. An elaborate, 68-page booklet, this report includes one section on the Dietary Department. The Dietary Department in the last year served 772,867 meals, an increase of 16,003. The total dietary expense was $309,353.06. Twelve students were accepted for training in 1945 in the hospital's approved training course.

Old Issues of Journal Wanted. Nelda Ross, director, Department of Nutrition, Presbyterian Hospital, New York, wishes to obtain a copy of Volume I, No. 1, June, 1925, of the JOURNAL. If any member has a copy of this issue which she is willing to sell, Miss Ross will be pleased to buy it.

Nutrition Bulletin. Copies of Volume 1 of *Nutrition Echoes*, published by the Milwaukee Health Department have been received in the JOURNAL office. This publication, whose purpose is to promote a better knowledge of nutrition among the public health nurses in Milwaukee, is a single mimeographed sheet, issued monthly. In the first year of its publication, it has included items on the famine situation, recipes, information on obtaining adequate protein requirements when meat is unavailable, and sources of calcium.

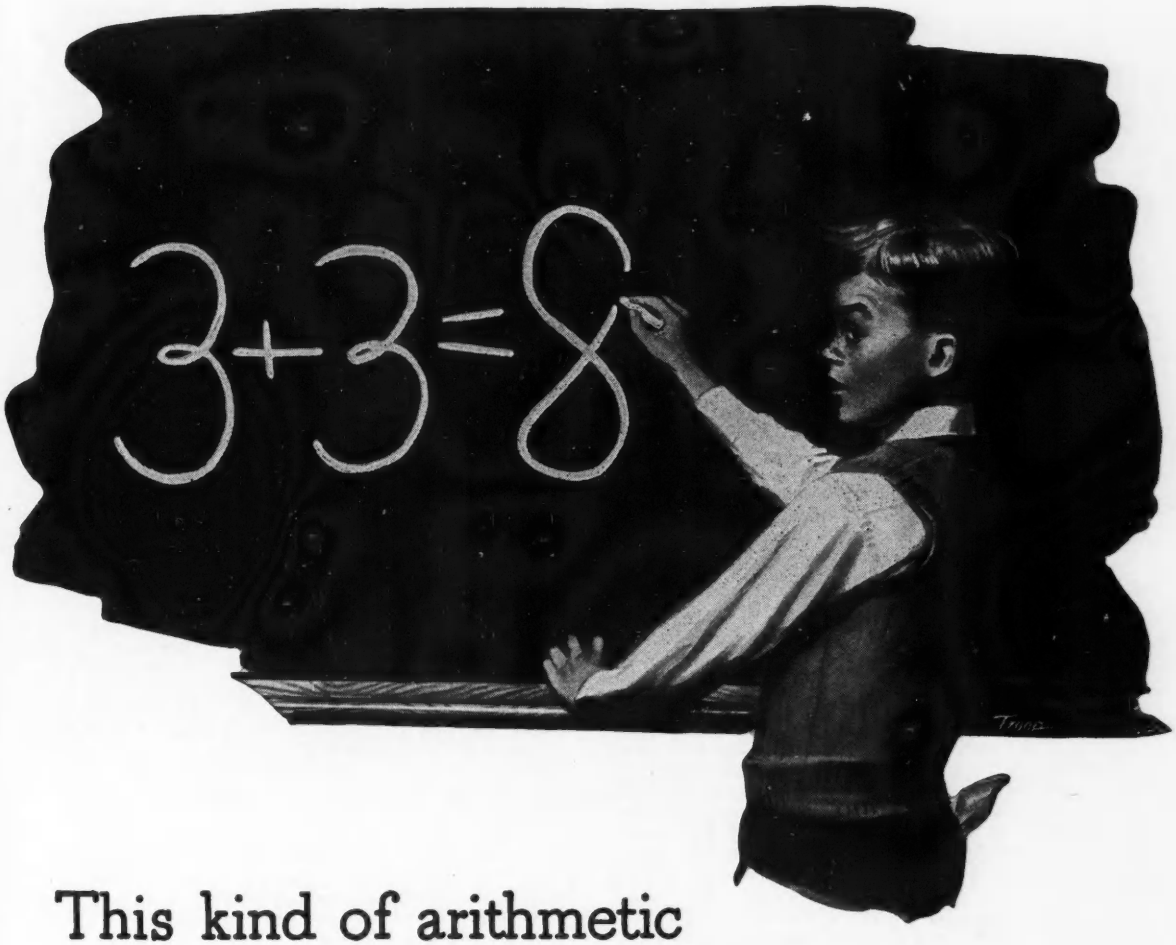
The Washington Institute of Medicine has announced the appointment to the editorial board of the *Quarterly Review of Obstetrics and Gynecology* of Professor James Young, D.S.O., M.D., F.R.C.S. Ed., F.R.C.O.G., of London, England. Dr. Young is internationally known both for his distinguished clinical achievements and for his authoritative editorship of *The British Journal of Obstetrics and Gynaecology*.

Obituary. Margaret Mines, a member of A.D.A. since 1931 and a life member since 1944, died at the Pettinger Sanitarium, Monrovia, California, in June. She had served overseas with the 185th General Hospital as a second lieutenant during the war.

The 11th Annual Conference of Food Service Directors will be held in Chicago, October 10–12, in connection with the National School Cafeteria Association convention. On the program are: a panel discussion on "Successful Methods of Promoting Selection of Proper Foods by Students"; a "Test Kitchen Demonstration"; a dramatization of "Equipment, Selection, and Purchase"; and a "Personnel Skit."

Army to Recall 50 Dietitians. Authority has been granted by the War Department for the recall to active duty of 50 Medical Department Dietitians as Army of the United States officers. There is an immediate need for these officers. Medical Department Dietitians desiring recall to active duty should contact the Director, Dietetic Consultants Division, Office of The Surgeon General, for the Application for Extended Active Duty, WD., AGO Form 160.

Famine News. Paul C. Stark, Director of the Food Distribution Programs Branch, Production and Marketing Administration, USDA, and Director of the National



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Garden Program, has been named Director of the Office of Emergency Food Program. He will also serve as executive director of the Famine Emergency Committee. Relief efforts will not be slackened by this agency, although it is hoped that after September 1, necessary activities being conducted by this office in the field of famine relief can be carried on by the regular agencies of the Department.

According to the report of Clinton P. Anderson, Secretary of Agriculture, shipments of food exported to war-devastated countries by June 30 of this year amounted to more than 16½ million long tons, and the 400-million-bu. "bread" grain export commitment of the U. S. for the year ending in June was met. In fact, a million bu. over and above our commitment were shipped to famine-stricken countries, and by the middle of July our goal of 147 million bu. for the year was achieved. Grain shipments were nearly double the original requirement presented to the Combined Food Board in 1945. Second in importance for relief were shipments of: edible fats and oils, 356,000 tons; dairy products, 764,000 tons; and meats, 614,000 tons. Other exports of 3,200,000 tons included dry beans and peas, potatoes and sweet potatoes, fruits and vegetables, sugar, eggs, and canned fish. In fact, of all food distributed from U. S. supplies in 1945–46, 1 out of every 6 lb. went overseas. Foreign countries were sent more than 40 per cent of the wheat, more than 35 per cent of the rice, more than 20 per cent of the cheese, more than 10 per cent of the fats and oils, and about 6 per cent of the meat.

The fight against famine will be continued, however, as the need is still great. In July, representatives of 17 youth organizations met with President Truman to mobilize 32 million children in a campaign against hunger. This and other activities highlight the fact that prevention of mass starvation is only one victory in the fight against famine. Diets in all famine areas are inadequate—frequently less than half the average for the U. S. While less spectacular than mass starvation, this mass malnutrition has meant greatly increased death rates among children and the aged, a higher incidence of disease and a physical inability to do a day's work.

Food conditions after October 1 will depend upon the harvests. It has been estimated that world cereal supplies during the coming year will fail to meet even minimum requirements by some 375 million bu. Dr. Dennis A. FitzGerald, secretary-general of the new International Emergency Food Council, says this gap will mean "above-average hunger" in many parts of the world. Exports of grain and other foods from this country undoubtedly will be required during the year beginning October 1, although it seems unlikely that such exports will be as large as in the preceding 12 months. Exports of any size, however, will be dependent upon careful government management.

Supplies. USDA estimates that civilians will have from 135 to 140 lb. of meat per capita in the year beginning July 1, 1946. In the year just past, the per capita supply was from 145 to 150 lb., and the prewar rate was 126 lb. Reduced meat supplies are due chiefly to the anticipated smaller pig crop and the marketing of animals at lighter weights. Heavy supplies of poultry and eggs are expected, but demand is likely to be greater because of less red meats. The rush of cattle to market after announcement was made that meat would be put under ceilings early in September, together with OPA announced prices on August 28 have brought forth predictions from authorities in the packing industry of impending meat shortages for at least the next two months.

In July, the Department of Agriculture authorized a slight increase in the quantity of flour millers may produce for domestic distribution beginning July 1. The production increase is authorized by adding to the 85 per cent permitted grind a quantity equivalent to 85 per cent of the average monthly deliveries of so-called "green dot flour" to the Army during 1945. The addition of the green dot flour will increase the total permitted grind about 2½ per cent.

The 1947 national wheat goal has been set at 71,720,000 seeded acres, which will produce a yield of more than 1 billion bu. if conditions are equal to the last few years. If yields should fall to the 1935–44 average of 13 bu. per acre, a crop of 934 million bu. would be produced. Although the proposed acreage is larger than would be desirable for proper long-term land utilization and conservation, the maximum acreage is proposed because of the enormous need for wheat next year. Announcement has also been made by the Department of Agriculture that no wheat marketing quota and no acreage allotments during 1947–48 will be made, because the supply of wheat (crop plus carry-over) is expected to be less than necessary under the law to impose quotas.

Potatoes, peaches, and onions are in such plentiful supply that special radio programs in some places are being used to move crops.

Allocations of approximately 8 million 100-lb. bags of milled rice have been made for civilians during the year beginning July 1. This compares with 7 million bags consumed in the last year.

Spices are now more plentiful than during the war, with only pepper, mace, and nutmeg still under allocation. Some purchases of pepper have been made in India, but imports are not coming in yet, and recent import license requests for mace and nutmeg suggest that more of these spices will be available soon.

Requirements that canners hold portions of their 1946 Chum salmon pack have been ended, and it is estimated that over 238,000 cases of this economical variety of salmon will be released for distribution through regular food channels. Quotas of 33 per cent of all other salmon and 45 per cent of Atlantic and Pacific mackerel, pilchards, and Atlantic sea herring, remain in effect.

The government ended its set-aside order for 50 per cent of the July evaporated milk. This action was taken in view of the general increase in evaporated milk and other dairy prices during July, the uncertain situation regarding price control and subsidies, and a reduction in the total government requirements from 12 to 9 million cases.

Civilian allocation of edible fats and oils (including lard, margarine, shortening, and other oils) will be about 11 per cent smaller in the third than in the second quarter of 1946. To relieve extreme shortages of these foods in 25 western and southern states, an emergency quota amounting to an additional 6 per cent was authorized which will channel about 30 million lb. of fats and oils into: Virginia, West Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Florida, Kentucky, Tennessee, Louisiana, Texas, Oklahoma, Arkansas, Colorado, New Mexico, Arizona, California, Oregon, Washington, Idaho, Montana, Neveda, Utah, and Wyoming.

News of State Associations

District of Columbia Dietetic Association. Capt. Katherine E. Manchester was awarded the Army Commendation Ribbon on March 7. Lt. Elizabeth Barnes was married on April 16 to John Bissel. Columbia Hospital has appointed two new dietitians, Betty Reiss, formerly a Medical Department Dietitian, and Martha Hall, who comes from Hermann Hospital, Houston, Texas. Mrs. Gertrude Moore resigned from her position on the dietetic staff of St. Elizabeth's Hospital to join her husband in Madison, Wisconsin.

The U. S. Public Health Service has reinstated three dietitians recently released from service: Clara B. Tavis, has been assigned to the Marine Hospital, Seattle; Frances

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9. ½ to 1 PAT BUTTER
10. CREAM
11. CREAM
12. 1 SERVING VEGETABLE
13. 1 SERVING VEGETABLE
14. 1 SERVING GREEN VEGET
15. 1 Slice Bread or 1 Roll
16. 1 Slice Bread or 1 Roll
17. 1 Slice Bread or 1 Roll
18. 1 Slice Bread or 1 Roll
19. 1 Slice Bread or 1 Roll
20. 1 Serving Citrus Fruit
21. 1 SERVING FRUIT
22. 1 SERVING FRUIT
23. A Small Quantity of Sugar, Jelly, Jam, Preserves
24. 6 to 8 Glasses of Water
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Dinner
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Croker to the Marine Hospital, Louisville; and Harriet Kossove to the Marine Hospital, Norfolk. The Service has also made three new appointments: Mary Hartquest, who is on duty in the U. S. Public Health Service Hospital, Fort Worth; Rebecca Koerting, assigned to the Marine Hospital, San Francisco; and Sina Fowler, Marine Hospital, Chicago.

Alice Hay has resigned as dietitian at Mt. Alto Veterans Hospital to return to the research field.

Maryland Dietetic Association. Members of the Association had a picnic and outing at the summer home of Mrs. Walter Frey on the Magothy River, Saturday afternoon, July 20.

Emma Childs has resigned her position as dietitian at Goucher College after 28 years. Marguerite Betts worked at Women's Hospital while Mrs. Ralph Claf (Margaret Robertson) was on vacation. Jane Hartman has accepted the position of consultant dietitian for the Maryland State Department of Health. She will also remain on the staff of Sinai Hospital. Jessie Wetter succeeds her as chief dietitian. Louise McKenney, Liana Cernoia, and Celia Whitney joined the staff of the John Hopkins Hospital August 1. Harriet Holt has resigned from the Hopkins staff; she plans to be married September 3 to Louis D. Cloud of Birmingham, Alabama.

The Massachusetts Dietetic Association. The last meeting of the Massachusetts Dietetic Association was held in Salem. Edith Hoadley, chief dietitian, Salem Hospital, was hostess and a delicious buffet supper was served on the lawn of the Nurses' Home. The evening's entertainment consisted of a delightful puppet show. Following this, Mrs. Charlotte Raymond Rothwell, a former well-known member of the Association now living in England, spoke vividly of her experiences during the war years with a hospital unit of the American Red Cross in Salisbury, England. The following officers have been appointed for the following year: President, Marion D. Floyd, Massachusetts General Hospital, Boston; Vice-president, Elizabeth K. Caso, Harvard School of Public Health, Boston; Secretary, Harriet Wright, Pratt Diagnostic Hospital, Boston; Treasurer, Helen MacDonald, New England Baptist Hospital, Boston.

Helen Bishop and Mary Fleisher will fill research and administrative positions respectively, at Massachusetts General. Dayna Klisurich, who was formerly in charge of the Nutrition Clinic at Massachusetts General Hospital, has resigned and was married to William Brandon on July 13. Wilma Robinson has resigned from the Cambridge Hospital, where Dorothea Bartlett has received an appointment as chief dietitian.

New York Dietetic Association. A 36-page booklet has been published by the *Greater New York Dietetic Association* giving its *Annual Report* to the members. The *Report* chronicles the programs for the year 1945–46, including reports from each section chairman and the officers, as well as condensations of some of the addresses given at meetings during the year.

Hudson Valley Dietetic Association. At the May meeting, various members reported on their trip to the Syracuse convention of the state association. First Lt. Emily Horton of Albany, recently separated from the Army, told of her experiences in the South Pacific. The following officers were elected for 1946–47: President, Mrs. Caroline Sherman Lanford, Albany; Vice-president, Ruth Irwin, New York State Health Department; Secretary, Margaret DeVries, Albany Hospital; Treasurer, Martha Deal Samaritan Hospital, Troy.

Affiliation of the **North Dakota Dietetic Association** with the A.D.A. was completed on June 18 of this year. This brings the total number of affiliated state and territorial organizations to 45.

Ohio Dietetic Association. At a business meeting, the *Cincinnati Dietetic Association* elected the following officers for the coming year: President, Frances Voris, Cincinnati General Hospital; Vice-president, Marian Jackson, American Red Cross; Secretary, Grace Masuda, Cincinnati General Hospital; Treasurer, Martha Lindner, Christ Hospital.

Sister Romuald, director of nutrition, Good Samaritan Hospital, Cincinnati, spoke on the "Pay Cafeteria for Staff Members and Employees" at the Catholic Hospital Association in Milwaukee in June. Mr. and Mrs. William McAlister (Ann Toomey) announce the birth of Barbara Ann on July 4. Lt. and Mrs. Stephen Neff (Margaret Colgan) announce the birth of a daughter, Kathleen Marie, June 25 in St. Louis. Mrs. Neff was formerly supervisor at the coffee shop, Good Samaritan Hospital. Betty Grunkemeyer, former assistant dietitian at the Good Samaritan Hospital, was married to Richard Everhart in Cincinnati, June 2. Alberta Hughes, former main kitchen supervisor at Good Samaritan Hospital, visited in Cincinnati June 25–26. She is now assistant chief dietitian at Kennedy General Hospital, Memphis.

Seven students entered training at the Good Samaritan Hospital July 1, while Christ Hospital, Cincinnati, has enrolled four new student dietitians.

Almeda Safford, Kent State University, who has just completed her training at Christ Hospital, will remain on the dietary staff as assistant therapeutic dietitian. Lois Sheridan, formerly student dietitian at Christ Hospital, has been appointed assistant therapeutic dietitian at Butterworth Hospital, Grand Rapids, Michigan. Loretta Grace Rack, graduate of Our Lady of Cincinnati College, and of Christ Hospital, has received an appointment as assistant dietitian at Children's Hospital, Cincinatti. Susan Finkbine, recent graduate at Christ Hospital, returned from her home at Storm Lake, Iowa, to relieve during the vacation period. Betty Jean Aubertin, formerly of Cincinnati General Hospital, resigned in August to be married. She will live in Panama.

The *Columbus Dietetic Association* held its final meeting of the year in June and elected the following officers: President, Beatrice Evans; President-elect, Mary Leatherman; Vice-president, Elizabeth Cochran; Secretary, Alice Anderson; Treasurer, Mary Huck. A newcomer to the staff at Northside Unit, Youngstown, is Josephine Cypriany a graduate of Seton Hill College and Harper Hospital.

Kathleen Scobie, who has been connected with the Dietary Department of the Ohio State University Hospital for a number of years, will go to Harvard University to become nutritionist in the new child welfare center October 1. She will work with Doctors Stuart and Burke, who are well known for their advancement in the field of nutrition. Martha Chase resigned as dietitian with the Ohio State University Hospital and is now serving as clinic dietitian at the Massachusetts General Hospital, Boston. Elizabeth White, Middletown, Ohio, who was recently discharged from the Army, assisted in the Ohio State University Hospital Dietary Department during the summer. A letter from Dorothy Osler, formerly of Children's Hospital, Columbus, stated that she was very happy at Leahi Hospital, Honolulu. The work there is very interesting, the climate delightful, and the food and labor situation probably superior to the mainland.

At the American Home Economics Association meeting in Cleveland in June, the *Cleveland Dietetic Association*

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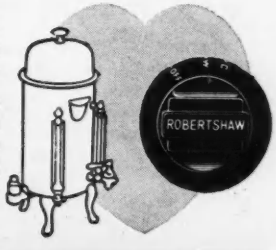

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manned the A. D. A. exhibition booth. Elizabeth Perry, dietitian at City Hospital, is the president of the Cleveland Home Economics Association.

The members of the *Akron Dietetic Association* greeted the summer with a picnic at Coon Hollow Cabin in Metropolitan Park. Dorothy Ostryk, City Hospital, arranged a treasure hunt which led to the picnic supper. Ellen Martin, head dietitian, Children's Hospital, and her committee were responsible for the supper. A guessing game, a quiz game, and a grand song fest concluded the evening. The members of the Canton and Kent Associations were guests.

Mrs. Marcia Weston, assistant dietitian, Peoples Hospital, is on leave of absence. She left to join her husband who is in a veterans hospital in Battle Creek, Michigan. Julia Dearchs, director of Akron Dairy Council, enjoyed her vacation "back home in Iowa." Ruth Joy, home service director of the East Ohio Gas Company, Mrs. Glenna Snow, home economics editor of the Beacon *Journal*, Julia Dearchs, and Mae O'Neil, food service director of the Peabody Food Company, attended several sessions of the American Home Economics Convention in Cleveland.

Virginia Dietetic Association. New officers elected in May are: President-elect, Mabel Gladin; Vice-president, Janet Cameron; Secretary, Mary Jane Allen; Treasurer, Julia Pack VanHorn; Nominating Committee Chairman, Elizabeth Lounds. The new officers will assume their duties on November 1 with the president, Dr. Alice L. Edwards.

At a spring Home Economics Convention in Richmond, Margaret Fitzhugh, V. D. A. chairman of exhibits, arranged a poster display of the booklet, *Dietetics as a Profession*.

Six members of the graduating class of Madison College, Harrisonburg—all students of institution management—have received appointments to student training courses in dietetics.

The *Tidewater Dietetic Association* has enjoyed two outstanding meetings, highlighted with talks by John G. Kolbe of Richmond who spoke on "The New Developments in and the Availability of Postwar Equipment," and Dr. Ralph E. Porter, chief medical officer at Marine Hospital, Norfolk, whose subject was "Psychiatric Problems." Officers of the Association are: President, Edna Cates, Leigh Memorial Hospital, Norfolk; Vice-president, Minerva Hall, Norfolk General Hospital; Treasurer, Alice Wiggins, DePaul Hospital, Norfolk.

The May meeting of the *Richmond Dietetic Association* featured a nutrition puppet show, sponsored by the Richmond Nutrition Council and presented by Page Drinker and Margaret Mason, nutritionists of the Richmond Dairy Council. At the June meeting, Dr. Raymond Kimbrough, Medical College of Virginia, spoke on "Recent Developments in Nutrition Research." The following officers have been elected: President, Margaret Fitzhugh; Vice-president, Page Drinker; Secretary, Mary Jane Allen; Treasurer, Jeannette B. Flippo; Nominating Committee Chairman, Charlotte Old.

Eleanor Wolfe has returned to Texas, after having resigned from her position as head dietitian at Saint Luke's Hospital, Richmond, the first of May. Laura Crance, following her separation from the Army, has returned to her former employer, Saint Luke's Hospital, Richmond, to assume duties as head dietitian. Wynn Ogle, assistant dietitian in the College Dining Hall, Mary Washington College, is resigning to be married this fall. Women's College of the University of North Carolina has conferred the degree of Master of Science upon Nancy McCall. A baby girl was born to Mrs. Mildred Cottier in Roanoke, on May 21. On June 15, Elizabeth File was married to Dr. Richard Reed at the First Christian Church, Beckley, West Virginia. Mrs. Reed, until her marriage, was assistant dietitian in administration at Medical College of Virginia. She plans to work in the Norfolk General Hospital while her husband is interning at DePaul Hospital. Dorothy Chapman resigned her position at Medical College of Virginia to accept an appointment at Delaware General Hospital, Wilmington, Delaware.

West Virginia Dietetic Association. The first issue of the *Bulletin of the West Virginia Dietetic Association* reached the JOURNAL office in July. It is a well-printed, 12-page periodical and includes local items of interest to members, an article on "Protein Nutrition in Problems of Medical Interest"; a "Normal Diet for Pregnancy and Lactation"; and a compilation of replies received to a questionnaire sent out to determine the present employment of and future need for dietitians in West Virginia hospitals. Margaret Joseph is editor and business manager of the new *Bulletin*. The W.V.D.A. is pleased to announce that Ruth Noer, head of the Division of Home Economics and professor of home economics, West Virginia University, is its first honorary member. Mrs. Ruth L. Gorsuch has resigned as head dietitian at the Charleston General Hospital. Mrs. Sarah Dillon Hoggatt has resigned as therapeutic dietitian at Charleston General Hospital to join her husband, recently discharged from service, in Ohio.

News about Members

The following members of the American Dietetic Association have recently accepted new positions and appointments:

Lorraine J. Adams, née Johnson, has resigned from Henrotin Hospital, Chicago, to accept a position in the Dietary Department, Providence Hospital, Seattle.

Edith E. Ames has been appointed assistant professor of institution management and cafeteria director at the University of Minnesota. Miss Ames has been associated with the New York State Institute of Agriculture in Cobleskill, New York.

Mary Edna Aschenbrener is now with the Veterans Administration, Marion, Illinois, having been transferred from the Veterans Administration, Downey, Illinois.

Charlotte Balkema, following her separation from the Army, has been appointed director of food service in one on the residence halls at Stanford University.

Dorothy Bartelme reported for duty at the St. Mary's Hospital in Duluth, Minnesota on August 1. Miss Bartelme was formerly with the St. Joseph's Mercy Hospital in Detroit.

Mrs. Winifred Bouvet is the new research dietitian at Tulane University School of Medicine, New Orleans. She left a research position with New York Medical College, New York City.

Zola C. Boyd, following her separation from the Army, has received an appointment at Hahnemann Hospital, Portland, Oregon.

Helen M. Brisbane has been shifted from the Veterans Administration Hospital, Topeka, Kansas to the Veterans Administration Hospital, Muskogee, Oklahoma.

Virda Broadway is now employed by the U. S. Public Health Hospital, Sheepshead Bay, Brooklyn, New York.

Margaret Bruechert reported to French Hospital, San Francisco, as dietitian, July 1. She has been staff dietitian at the University of California Hospital, San Francisco.

Kathryn A. Bryan has accepted a new position with St. Anthony's Hospital, St. Petersburg, Florida.

Rose E. Buckley is the new assistant dietitian at the State Hospital, Scranton, Pennsylvania. She has previously been with the Bayonne Hospital, Bayonne, New Jersey.

PREVIEW FOR YOU

We're showing here, before we present it to the readers of national magazines in November, a new Dole dessert—PINEAPPLE-CHEESE ICEBOX PIE. We invite you to make this pie and discover how lusciously different it is. And if you want to use this recipe professionally, we'll be delighted.

PINEAPPLE-CHEESE ICEBOX PIE

Crumb Crust: Crush 4 cups corn flakes fine (makes 1 cup); add 2 tbsps. sugar, 4 tbsps. melted butter or margarine; mix well; press into 9" pie pan, reserving 3 tbsps. crumbs for topping. Chill thoroughly in refrigerator, or bake 8 minutes at 375°.

Filling: Add 1 tbsp. plain gelatin to ¼ cup cold water; set aside. In cold double boiler beat 3 egg yolks slightly, add 1 cup Dole Crushed Pineapple (syrup and all), 1 tsp. grated lemon peel, 2 tbsps. lemon juice, ¼ cup sugar; cook over hot water, stirring, until thick; add gelatin, stir until dissolved, remove from heat. Put 1 cup soft cottage cheese through wire strainer, add to hot mixture; cool until beginning to thicken. Beat 3 egg whites with ¼ tsp. salt; when stiff, gradually beat in ½ cup sugar, and fold into pineapple-cheese mixture. Heap in chilled crust, sprinkle with reserved crumbs, and chill 3 hours or longer. Serves 6.

Dole HAWAIIAN PINEAPPLE PRODUCTS

Marion Chesterman has been appointed head dietitian, Lowell General Hospital, Lowell, Massachusetts, having assumed her new position July 22. She has been teaching dietitian at Reading Hospital, Reading, Pennsylvania.

Josephine Cipriany, who has been employed at Harper Hospital, Detroit, is now administrative dietitian, Youngstown Hospital, Youngstown, Ohio.

Janet de Bissette Clark, formerly with Northwestern Hospital, Philadelphia, is now in Scranton, Pennsylvania, employed by the Moses Taylor Hospital.

Hannah E. Clayton has taken up duties as dietitian in charge of Commons, Muhlenberg College, Allentown, Pennsylvania.

Dr. Ruth Cowan Clouse has resigned as chairman of the Home Economics Department of the Illinois Institute of Technology to accept the position of chairman of the Department of Home Economics at the University of Miami, Coral Gables, Florida.

Mrs. Mary Connor has accepted a position as head dietitian, Murray Hospital, Butte, Montana.

Elizabeth Cook has just accepted a new position with Sky Chef's Inc., at La Guardia Field Airport, New York.

Mary Ruth Curfman began work as dietitian with Western Electric Company, Chicago, on July 1.

Ruby David has accepted a new position with Southern Pacific Hospital, Houston, Texas.

Margaret E. DeVries, formerly with Bronx Hospital, New York, is now employed at the Albany Hospital, Albany, New York.

Christina Doyle, formerly at the University of Alabama, has a new position with Hermann Hospital, Houston, Texas.

Grace Ericksen, following her release from the Army, has accepted a position at St. Marys Hospital, Rochester, Minnesota.

Helen G. Everett is now nutrition consultant for the Eastern Area, American Red Cross, Alexandria, Virginia. She was formerly with the Bureau of Maternal and Child Welfare, District of Columbia Health Department, Washington.

Beatrice Finkelstein is in New Haven, Connecticut, at the Yale University School of Nursing. She has previously been employed by Alabama Polytechnic Institute, Auburn, Alabama.

Marticia E. Fox has been transferred from Veterans Administration, Muskogee, Oklahoma, to the Veterans Administration, Will Rogers General Hospital, Oklahoma City.

Margaret Fuller was appointed to the staff of Barnes Hospital, St. Louis, as ward dietitian, on completion of her student training in that hospital.

Mrs. Helen D. Gates recently began work at the Massachusetts Hospital School, Canton, Massachusetts.

Frances Gentile has been appointed therapeutic dietitian at the Northwestern Hospital in Minneapolis, Minnesota. Miss Gentile attended Mt. Mary College in Milwaukee and completed approved course training at the University of Oklahoma Hospital.

Dorothy J. Gill, until August 1 with the Educational Division, California Fruit Growers Exchange, has accepted a new position as teacher and therapeutic dietitian at Illinois Research and Educational Hospitals, Chicago.

Beulah Gordon is now employed at the Riverside County Hospital, Arlington, California.

Alice E. Haight, who was recently separated from the Army, is now dietitian at the Nix Hospital in San Antonio, Texas.

Sue Head, formerly assistant director of dietetics, Michael Reese Hospital, Chicago, has been promoted to the position of director of dietetics.

Kay Louise Johnson has been appointed chief dietitian, Iowa Methodist Hospital, Des Moines.

Alice Curley Keyes is dietitian, Herkimer Hospital, Herkimer, New York. She was previously employed by Roosevelt Hospital, New York.

Helen Klan has resigned her position at St. Elizabeth's Hospital, Youngstown, Ohio.

Ruth M. Klinger became assistant in diet therapy at Strong Memorial Hospital, Rochester, New York, on August 15. She has previously been metabolic dietitian, Peter Bent Brigham Hospital, Boston.

Magdalin Klobe has been promoted from the position of assistant dietitian to director of dietetics, Saint Luke's Hospital, Cleveland. She assumes her new duties September 1.

Katherine Kratoska has been appointed assistant dietitian, Mt. Zion Hospital, San Francisco, California.

Clara Kurtz has left her position as educational director, Cook County Hospital, Chicago, to become chief dietitian at George Washington University Hospital, Washington, D. C.

Miriam Larsen since August 1 has been dietitian in charge of the Residence Hall, Iolani School, Honolulu, Hawaii. She left a position with Michael Reese Hospital, Chicago.

Florence Lee, formerly the director of the Waterman Building Cafeteria at the University of Vermont, became director of food service at Syracuse University on September 1.

Sylvia J. Levie has received her discharge from the Army and has accepted a position as chief dietitian at the Jewish Hospital in Cincinnati. Miss Levie received her master's degree from Columbia University in 1943.

Helen Link, who has been employed at the Miami Valley Hospital, Dayton, has accepted the position of chief dietitian, Vanderbilt University Hospital, Nashville.

Sarah F. Madden has resigned from her position at the Presbyterian Hospital, New York City, and is now directing the research on a frozen food project at the University of Missouri, Columbia.

Margaret E. Manis has left Saint Luke's Hospital, Spokane, to go into public health work with the Spokane County Health Department.

Mildred P. McMahon (Mrs. C. D. McMahon, Jr.) formerly dietitian, Wilkes Barre General Hospital, Wilkes Barre, Pennsylvania, is now dietitian at Women's Hospital, Cleveland. Before her recent marriage, she was Mildred Petro.

Charlotte Meisels, formerly nutritionist for the Emergency Food Commission, Rochester, New York, has accepted the position of cafeteria director at Bronx High School of Science, Bronx, New York.

Pauline V. Merrill has left Brooklyn Jewish Hospital to become assistant administrative dietitian at Memorial Hospital, Charlotte, North Carolina.

Dr. Helen S. Mitchell has left the position of professor of nutrition at Carnegie Institute of Technology and is going to the Massachusetts State College in Amherst as dean of home economics.

Ann Molleson has successfully completed her approved course training at the New York Hospital and has accepted a position at the Englewood Hospital in Englewood, New Jersey.

Helen R. Moore has resigned as dietitian at the Chesapeake and Ohio Hospital in Clifton Forge, Virginia to become the chief dietitian at the Staten Island Hospital in Staten Island, New York.

Margaret C. Moore is now working at the Veterans Administration Hospital, McKinney, Texas. She has previously been employed at the Veterans Administration Hospital, Albuquerque, New Mexico.

Arvilla Morse has accepted an appointment at the Cedars of Lebanon Hospital, Los Angeles. She was formerly connected with Memorial Hospital, Wilmington, Delaware.

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Hazel B. Nelson is the new chief dietitian, California Hospital, Los Angeles. She has been employed by Monmouth Memorial Hospital, Long Branch, New Jersey.

Lillian E. Park, former dietitian in charge, Essex County Hospital, Cedar Grove, New Jersey, has accepted the position of chief dietitian, Grasslands Hospital, Valhalla, New York.

Dorothy Truaz Parkinson has resigned from her position as assistant nutrition specialist, Pennsylvania State College, to become a homemaker.

Mary R. Parsons, former dining room manager of Dakota Wesleyan University in Mitchell, South Dakota, is now director of foods at Albion College in Albion, Michigan. Miss Parsons received her master's degree from Iowa State College in 1945.

Phyllis Plaster has accepted a position at the Emanuel Hospital in Portland, Oregon as assistant therapeutic dietitian. Until recently Miss Plaster was dietitian at Indianapolis City Hospital. She attended Washington State College and completed her approved course training at Peter Bent Brigham Hospital in 1944.

Mame Tanner Porter has resigned from Jewish Hospital, Philadelphia, to become director of the Department of Nutrition, St. Vincent's Hospital, New York.

Dorothy Reinbolt, former dietitian at the Borgess Hospital in Kalamazoo, Michigan has resigned to become head dietitian at the Good Samaritan Hospital in West Palm Beach, Florida.

Dorothy Richardson has been appointed dietitian of the Commons Cafeteria, University of Wyoming, Laramie. Before her separation from the Army, she was dietitian in charge of the Hospital Training Unit, Presidio of San Francisco.

Nanette D. Robertson is now first assistant dietitian in administration, Cambridge Hospital, Cambridge, Massachusetts. She left a position with Presbyterian Hospital, Newark, New Jersey. She recently received her master's degree in institution management from Teachers College, Columbia, University.

Zelma Rosenthal has been appointed dietitian, Barnert Hospital, Paterson, New Jersey. She was formerly chief dietitian, Deaconess Hospital, Detroit.

Nelle Scott until recently director of cafeterias for the Muncie City Schools, is now the new food service director for the Y.W.C.A. in Indianapolis, Indiana.

Shirley Sikorski's first position is that of staff dietitian at the Franklin Hospital in San Francisco, California. Miss Sikorski completed her approved course training at St. Marys Hospital in Rochester, Minnesota.

Jessie M. Small, a former teacher of home economics at the Taft High School in Taft, Oregon, is now the new teaching dietitian at Mercy Hospital in Chicago.

Martha D. Smith formerly employed at the Lock Haven Hospital, Lock Haven, Pennsylvania, has accepted a position with St. Joseph Hospital, Lancaster, Pennsylvania.

Mable Soderholm resigned her position at the University of Florida to become dietitian at the Kessam Dining Room of Vanderbilt University in Nashville, Tennessee.

Martha E. Study has been appointed to a new position with the Missouri Pacific Hospital, St. Louis, Missouri.

Blanche Tansil has been appointed professor and head of the Department of Home Economics, University of Mississippi. For the past year she has served as consultant in school feeding in Washington, D. C., previous to which she was in charge of the Division of Institution Management and associate professor of home economics at Woman's College, University of North Carolina, Greensboro.

Elizabeth Vaughn, former head of the Nutrition Clinic at Cook County Hospital, has resigned to become the nutrition consultant of the Visiting Nurses' Association in Detroit, Michigan. Miss Vaughn was granted the Nutrition Foundation Scholarship in 1943. She received a degree of Master of Public Health from the Harvard School of Public Health in 1944.

Margie Vedder has resigned from St. Mary's Hospital, Detroit, to accept a new position with St. Joseph's Hospital, Ann Arbor.

Lorraine Weng is now clinic dietitian at the University of Chicago Clinics. Miss Weng's former position was that of assistant dietitian at the West Jersey Hospital in Camden, New Jersey.

Mabel Westcot has been appointed assistant professor in institution management, Texas State College for Women, Denton. She has previously been connected with Pratt Institute, Brooklyn, as teacher and cafeteria manager.

Wauneta Westcott resigned her position as chief dietitian at the Oak Ridge Hospital in Oak Ridge, Tennessee to become administrative dietitian at the Eye and Ear Infirmary at the Massachusetts General Hospital.

Jeanne Robinson White has been appointed assistant dietitian at Brachenridge Hospital, Austin, Texas.

Mary A. Williams, who served with the Armed Forces overseas for some time, is now assistant administrative dietitian at the Hospital of Women's Medical College of Pennsylvania.

Zulu Williams has accepted the position of administrative dietitian at the Presbyterian Home in Evanston, Illinois. Miss Williams has been dietitian at the Edwards Sanitarium at Naperville, Illinois.

A number of members of the A. D. A. have recently been married. Announcements of the following marriages have been received in the JOURNAL office:

Anna Boller on July 6 became Mrs. William Beach and is now living in Riverside, Illinois. She plans to continue her work with the National Live Stock and Meat Board in Chicago.

Alene Faltesek was recently married to Joseph E. Howe and has moved from St. Paul, Minnesota, to the Bronx, New York.

Dorothy W. Gaunt is now Mrs. Arthur R. Smith, and has left professional life to become a homemaker in Holliston, Massachusetts.

Margaret C. Gorman is the new Mrs. W. C. Gere, and has left Barnes General Hospital, Vancouver, Washington, to live in Los Angeles.

Mary Hemmer is now married to William F. Brady and is continuing her work at Mercy Hospital, Parsons, Kansas.,

Gertrude Hunt became Mrs. George Martin on July 1 and is now in Verdun, Quebec. She was recently released from the RCAF.

Marjorie E. Minor recently became Mrs. James Wilson. She is continuing her work as dietitian at Drake University, Des Moines.

Alice A. Mitchell was recently married to A. A. Neidigh and is living in Peoria, Illinois.

Betty Mueller was married on May 28 at Fort Sam Houston to Brittain W. Brantley, and is living in Lake Charles, Louisiana. She was recently separated from the Army, after having returned from six months' duty with the 142nd General and 100th Station Hospitals in India.

Gladys Sissel was recently married to J. Lloyd Thompson and has moved to Brunswick, Maine.

Elinor Wakefield is now Mrs. H. S. Suckling and is living in Seattle.

Lt. Renee Walz, following her separation from the Army, was married to H. R. Gill, Jr., and is now living in Winnetka, Illinois.

Lt. Josephine Woolverton, recently released from the Army, is now Mrs. Vernon M. Luman and is living in Long Beach, California.